

**TONS OF
TIPS**
FOR YOUR
MACHINE
see pages:
16-27,30,
32-33,
50-51

Issue 139 • 6th July 1991 • 88p

COMPUTER *EXPRESS*

FIRST NEWS • FIRST REVIEWS • BEST BUYS • YOUR WEEKLY GUIDE

AMIGA



DPAINT 4

Exclusive preview
of the state of art

PC & ST



VIRTUALITY!

Domark's 3D
Construction Kit

GAMES



FORE-PLAY!

Go Challenge is here

TOMORROW'S COMPUTERS...



- Keyboard?
- Disk drive?
- Monitor!?

Machines like
these don't
need 'em!

**TURN TO PAGES 6&7
TO FIND OUT WHY!**

PLUS: COMPUTER CRIME

Viruses **IN**: Hacking **OUT** – Millions **LOST**

WHAT WILL THEY THINK OF NEXT?

Giant holograms in
orbit, that's what! p55



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Frontend

Frontend Frontend Frontend

It's a jungle out there, but never fear - Frontend is here with all the wild and wacky lowdown on what's hot, what's not and what doesn't bear thinking about



• CDTV takes a sing along approach to entertainment with karaoke.

Pub singers can now warble away in the comfort of their own homes with the release of a series of karaoke disks for Commodore's CDTV.

A huge selection of bar-room classics is available, with words and graphics displayed on-screen to help those of a lyrical

SING ALONG WITH CDTV

disposition to sing along.

Some 39 disks, each containing around 18 classic tracks, are available at approximately £38 each. Songs include such indispensable offerings as *Kung Fu Fighting*, *Ebony and Ivory*, *DIVORCE*, and of course that favourite 'last orders' reverie, *New York, New York*.

And if that little lot hasn't got

your larynx lusting for song, two special Christmas disks are set for release featuring a host of yuletide songs.

The titles are published by Japanese (where else?) firm Arbiter and Commodore's Andrew Ball said: "I'm sure they'll be a winner for those pre-disposed to a good singalong around Christmas. ■



• Do spiders make your blood curdle? Therapy administered by your home computer could solve all that.

Micro medic for Little Miss Muffet

Digitised images of spiders can help people overcome fear of the long-legged beasts, claim researchers at Leeds University.

By using images ranging from spidery shapes to 3D models the university's Spider Phobia Project hopes to cure severe arachnophobia.

The exposure builds up to an introduction to real spiders and doctors reckon the treatment could eventually be conducted on a home micro, CD-I or CDTV. Researcher Dr Peter Ward says: "We've found from a number of surveys that roughly half of people with spider-phobia prefer to confide to a computer than a person." ■

BOMBER BUST

A computer programmer has been arrested for allegedly trying to create a job for himself by planting a 'logic bomb' in a military rocket's computer.

American Michael Lauffenburger was arraigned on charges of attempted computer fraud after he allegedly planted the bomb in a General Dynamics Atlas rocket.

It is alleged that Lauffenburger's scheme was to plant the bomb, allow it to destroy data and thus ensure that US military hardware giant General Dynamics would keep him on at a substantial salary as a consultant to find out exactly what had gone wrong.

Lauffenburger was originally employed by General Dynamics to write programs that tracked the availability and the cost of parts used in the manufacture of Atlas rockets. He quit his job in March to go into business as a consultant. "Four days before his resignation, Lauffenburger created a computer program, he called 'Cleanup' which, upon its execution, would have deleted the

parts database, deleted another set of programs used to respond to government requests for information and then deleted itself without a trace," says Assistant United States Attorney Mitchell Dembin.

It is alleged that the logic bomb was set to go off on May 24, right at the start of a public holiday weekend, but another programmer discovered the sabotage on April 10 and "successfully removed it from the system." ■

PSYCHO PASSWORD PROBE REPORT

The password you use to access your computer could provide an important key to your character, psychologists have found.

Passwords such as 'Rambo' and 'Tarzan' give away possible insecurity, while the name of a loved one indicates security and contentment. And for all those smart alics who use the password 'password', it is the most commonly used and psychologists say it can indicate a rather dull person.

Dr Guy Fielding of Bournemouth Polytechnic, who has completed a study of

the passwords that people choose, says: "It's very private, so people reveal things about themselves that in public they normally wouldn't dare."

Other common passwords include swear words, which are reckoned to indicate sexual frustration, and numbers which supposedly reveal a much more practical attitude.

• What is your computer password? Tell us and Dr Clare Anthony, resident Express psychologist, will give you an insight into your hidden frustrations and secret desires.

Send your secret password to New Computer Express, 30 Monmouth Street, Bath BA1 2BW, all in strictest confidence of course. ■

Krafty remix

Top Teutonic techno-rockers Kraftwerk, are back on the road to promote an album of digi-remixed hits.

The album, titled *The Mix*, features such classics as *Computerlove* and *Trans Europe Express*. UK tour dates are: Barrowlands, Glasgow July 11, Apollo Theatre, Manchester July 12, Liverpool Royal Court Theatre July 13, Hummingbird, Birmingham July 15, City Hall, Sheffield July 16, Playhouse Theatre, Edinburgh July 17 and Brixton Academy on 19 and 20 July. ■



• Kraftwerk go robo on their latest tour.

Tennis tout racket rumbled

Ticket touts aiming to clean up at Wimbledon this year are in for disappointment thanks to a computerised ticket monitoring scheme.

In previous years, people have bucked the system by applying for tickets in the public ballot and then selling them for a profit to a tout.

But this year the application form stipulates that tickets are non-transferable, so if someone turns up with a suspect ticket, officials can consult their computer to find out who should really be holding it.

The original owner of the ticket is also blacklisted from future ballots.

The All England Club, which stages the Wimbledon tennis championships, instigated the crackdown after increasing numbers of touts were noticed clustering around the venue and after receiving complaints about the number of seats taken up by people who had bought black-market tickets. ■



• Now even punters can improve their service at Wimbledon with the new ticket tout crackdown.

Friendly spiders • Touts trounced • Apples fine on art • bgi

ATTACK OF THE YUPPIE GAMERS

Computer gamers are not spotty-faced teenagers as commonly believed, but largely aged thirty-something and earn more than £30,000 a year.

So claims research firm NDL, which this week published figures turning the preconceptions of many on their head.

The firm's analysis of 213,000 people covering usage of a range of home computers, but not consoles, reveals that those in the 18-44-year-old age

bracket show the most interest in games.

However, interest tends to drop right off after people reach the age of 45.

The vast majority are high wage earners and most are married, with kids aged between five and 15. And, surprisingly, while most enthusiasts are male, NDL says the sex difference is just not significant enough to make it a significant characteristic.

As for the other interests of these well-resourced joystick



• *Stuff the spreadsheet, let's kill some aliens. It looks like the super-annuated stockbroker is more of a games freak than his offspring.*

wagglers, they enjoy completing crosswords, science fiction and new technology.

Interestingly enough, they are not in the slightest bit interested in gardening or religion. ■

COMPUTER CALAMITIES

CHIP BARONS

The size of computer chip thefts in California is rivalling the multi million dollar narcotics trade problem, according to San Jose police hi-tech crimes unit. "It has all the elements of drug crimes too," says SJPD Sgt Jim McMahn.

Computers. Can't live with 'em, can't live without 'em. Okay, they're very useful things, but often they're at the centre of a howling cock-up. If you hear any tales of magnificent malfunctions, send them to Computer Calamities, New Computer Express, 30 Monmouth Street, Bath BA1 2BW and we'll pay a fiver for each one printed.

This week our digital disaster takes us to France, where staff at a school walked out after receiving their pay slip. Why? New software installed in the wages computer had shifted all the decimal points two characters to the left. ■

A touch of the Mac classics

Multimedia techniques are to be used by the National Gallery, London, this summer to help people interact with its massive collection of western European paintings.

A powerful bank of twelve Apple Macintosh IIfx computers, each with 8Mb of memory and 1.3-gigabyte hard drive, will form the Micro Gallery, enabling visitors to browse through more than 2,000 paintings, plus supporting text, by simply touching an Ellinor Accutouch screen.

The Micro Gallery, sponsored by the American Express Foundation, aims to make the National's collection readily available to both scholars and the general public while preserving the paintings themselves, which suffer when conventionally displayed.

The software behind the project was developed by Cognitive Applications and is based on Apple's Hypercard 2.0, augmented by software written in lightspeed C. Display is via 19-inch Radius colour monitors and users can print out text or pictures on Laser Writers for a take-away record.

Enhanced 8-bit graphic images, more than a million words of text and even animated sequences are all available and the system can be entered at any one of four sections - artists, picture types, historical atlas or general reference. ■



• *Get your hands on a virtual masterpiece at the National Gallery's interactive Micro Gallery this summer.*

SHOOT FROM THE LIP

'Do let me know if you want review copies or if there are any other incentives I can offer to give the old PCW a plug. And if you ring up to tell me that your PCW already has a plug, I'll come and let your tyres down. And if you don't have a car, so much the better. Yours from a padded cell, boing...'

Nik Holmes of Creative Technology (Micro design) Ltd proving in a letter to Express that PCWs don't crash if you inject a sense of humour.

'A Little Pink Fluffy Dream.'

TV fave rave presenter Jonathan Ross describing the Kodak Diconix M150 printer, which isn't really very pink at all.

'I know I'm good and I know I'm the best but no fast talking leisure software publisher is going to entice me back to the land of the Virtual Paycheck. I'm staying with spreadsheets and networks where you can kick the money not imagine it.'

Jay Feideck IV, Californian former games programmer no longer living on a diet of promises.

'A representative from each application will be available so you can pick and choose to deal with only those of interest.'

Gayle Bryant in a press shot from Multimedia 91 implying that uninteresting people won't be allowed to talk to you.

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Win a £1,200 Acer laser

It's neat, it's fast and it could be yours for free! Turn to page 58 now

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Deluxe Paint 4 out soon

Of all the Amiga's programs, the Deluxe Paint series from Electronic Arts has been one of the most successful. The latest incarnation of this range, Deluxe Paint 4, is to be released in September and must be one of the most eagerly awaited releases, ever. In fact, Simon Jefferies, spokesman for Electronic Arts, expects that within a year Deluxe Paint 4 will be one of the company's largest revenue earners.

It improves over its predecessors in several important ways. One of the biggest enhancements is the inclusion of Hold And Modify (HAM) mode painting for the first time, which gives access to the Amiga's 4,096 colours at once. Now Amiga artists don't have to use other paint programs to access this mode, and makes Deluxe Paint a real all-rounder and something for its competition to worry about.

Not only is HAM mode available, but HAM pictures can also be animated. Animation as a whole has been expanded and now features a control panel that works in a similar way to a video recorder: playing, fast forwarding and rewinding between frames. Compression techniques have been incorporated to

save memory; essential with HAM mode because of all the colours involved.

Another new tool is the Lightbox feature, which displays animation frames over each other so changes between frames can be seen, making animation much easier.

Other added features include a metamorph function, which can transform brushes over each other and generate the animation frames between them; and anti-aliasing which smooths out the jagged parts of lines and curves.

In spite of all these improvements, the updated program will still be familiar to Deluxe Paint users. The same screen layout is used and the icons on screen remain essentially the same. All the added features have been incorporated in the program's familiar menus.

Deluxe Paint IV is to sell for £89.95. Owners of older versions need not feel left out though, as a complete upgrade path will be offered. Upgrading to the new version will cost £45 for owners of DPaint III, £55 for DPaint II and £65 for DPaint I owners.



• HAM animations are now possible with Deluxe Paint 4

While the program will no doubt be one of the Amiga's hottest titles, Electronic Arts believes it is so complex that a manual is essential, so pirates of the program will lose out. Future upgrades of Deluxe Paint look slim since Electronic Arts feels the program is so complete. Deluxe Paint IV, then, is expected to have an indefinite lifetime.

For information on this landmark release, contact Electronic Arts on 0753 49442.

3D graphics spreadsheet

Now spreadsheet work can look exciting with 3D Calc for the ST, from Microdeal.

3D Calc is a three-dimensional spreadsheet with an integrated editor, programming language, graphics and extended statistical functions. Features include three spreadsheets in memory at once, an integrated 3D programming language, various graphing options and extended database functions. There's also comprehensive statistical analysis and a cut-down version to work with 512K computers, as well as import/export options, including support for Lotus and ASCII files.

3D Calc will work on all STs and is available now for £29.95. Microdeal on 0726 69692. ■

Poquet buy out

Fujitsu has purchased 85 per cent of Poquet Computer in California costing £22.7million.

The Japanese firm first purchased stock in 1988. Fujitsu has already developed two versions of pocket computers: a notebook-type PC, the FMR Card; and the Oasys Pocket which weighs only 530g (1.16 pounds). ■

Japanese manufacturer announces September UK launch

NEO GEO OFFICIAL

Japanese arcade manufacturer SNK's Neo Geo, available from grey importers for over a year, is now to be officially released in the UK at the Consumer Electronics Show (CES) in September.

In hardware terms the console is very advanced, equipped with both 68000 and Z80 processors, a palette of 65,535 colours (with 4,096 on screen at any one time) and a stereo, 15-way sound chip. This puts it at the forefront of technology, but until recently the price has reflected this to an extreme.

Before now, distributors De Gale Marketing (DGM), imported a limited number of PAL machines during the year, but has now decided to release it on a nationwide basis.

The price of the Neo Geo has recently been cut from £450 to £299 in time for the launch. Even with this reduction, it is still at the top-range of the console market. This doesn't worry Luther de Gale, MD of DGM, who is targeting the machine at 'peo-

ple who want the best in console technology and software'.

Software for the machine is also pricey at £99 to £149, but De Gale believes the sheer quality of the software will speak for itself. SNK, he says, has the second biggest research facility in Japan in terms of arcade development, and at any one time there are always 15-20 titles in development. These are titles of all kinds, but they will not be licensed from other companies.

With only 10 games available at the moment, this number is expected to reach 20 by the end of the year. DGM will also operate a scheme whereby software can be rented or leased. This means that Neo Geo owners can test a game before they buy it.

One unique feature of DGM's marketing will be its exchange scheme, where cartridges bought or leased can be exchanged for others available, the money paid used as part-payment for any software being bought. De Gale sees Neo Geo owners ending up owning the



• Neo Geo - sleek black hardware destined to become an executive toy?

software that they want, and not being permanently stranded with a £25 disk - as they would with 16-bit computers - which they couldn't exchange.

DGM will sell and support the console itself, in much the same way it has done in the past. Distribution of the machine will be through more upmarket outlets only, such as Harrods, Selfridges and Debenhams, as the console is being targeted at a niche market. Luther de Gale

also sees the Neo Geo being sold in 'executive geared outlets' where it could also be perceived as an executive toy.

Whether this limited marketing approach will be a success is unknown. There is no question of whether the hardware and software is good enough; the problem could be whether there are enough people who will pay out for the most expensive machine in town, even if they do get a real arcade machine. ■

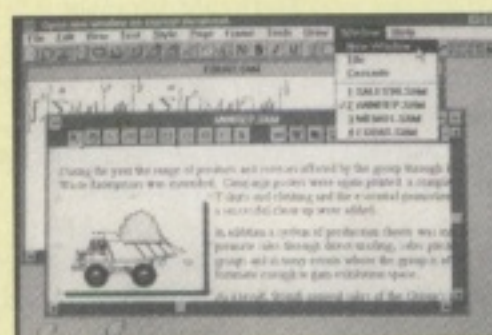
Ami Pro with added extras

Fans of the popular Ami Pro will be pleased to hear that Ami Pro Release 2.0 will be available towards the end of the year. Considerably upgraded, it provides extensive new word processing capabilities, support for work groups and integrates with the Lotus range of Windows products.

Features include an outliner, power fields, master documents and a scientific equation editor. Features that make the program easier to use, such as an interactive ruler, status bar and colour palette and Smarticons, a customisable icon

palette that provides access to features with a single click on the mouse button, have also been added.

Ami Pro 2.0 has an enhanced macro language that enables users to create automated documents and sophisticated applications that involve other Windows programs. Power Fields are commands that are directly typed into a document and enable it to perform a task automatically. For example, a business letter can request the input of a name, look up the address from another file and place the name and



• Ami Pro Release 2.0 for the PC-upgraded and easier to use.

address on the page. Documents of virtually any size are supported, limited only by available disk space.

Contact Lotus on 0784 455445. ■

Norton opens Windows

Symnatec is releasing The Norton Desktop For Windows which consists of file management tools and utilities for Windows users.

What the package does is combine easy-to-use file management tools on the Windows desktop with Symnatec's own advanced data protection technology tools, designed to safeguard data and improve productivity. It enhances Windows 3.0 by providing, the company believes, the only integrated environment needed to manage and protect data within the Windows operating system.

Available in August, The Norton Desktop For Windows, will cost £99 from Symnatec UK, 0628 776343. ■

Companies lose millions says report published by Audit Commission

VIRUS ATTACKS UP BUT HACKING DOWN

Computer virus attacks have dramatically increased, yet hacking has reduced in the past three years, according to a report published by the Audit Commission.

The survey, covering 1,553 organisations between 1988 and 1990, found that a growing number of private and public-sector organisations have been victims of computer fraud and theft, costing them millions of pounds. Many of the crimes were only discovered by chance.

Computer virus attacks account for about 30 per cent of offences and computer hacking, the unauthorised accessing of a data base by an employee or an outsider using the telephone lines, have fallen.

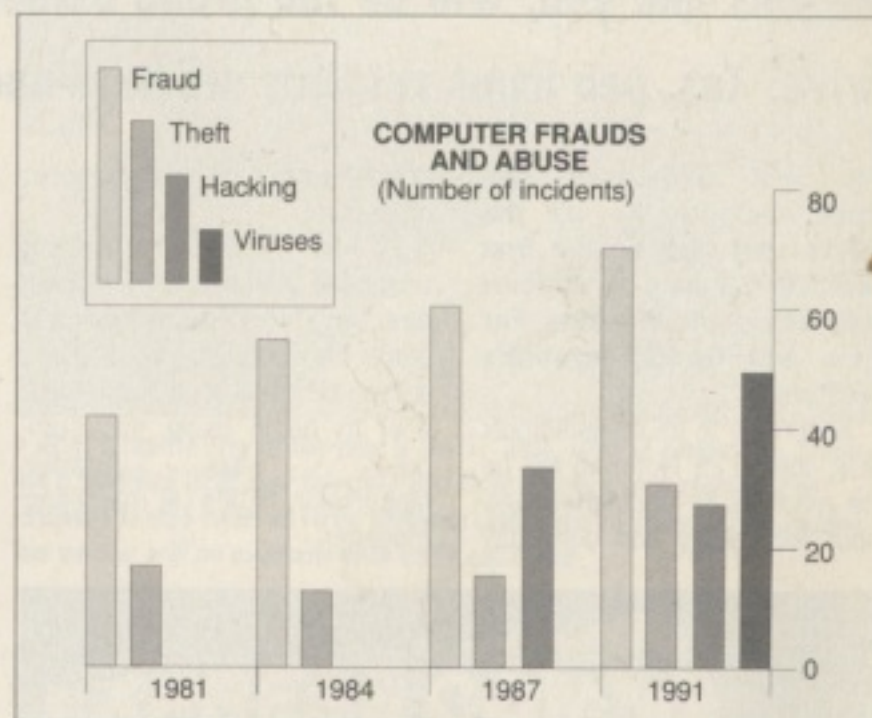
Computer fraud, including making payments to a fictitious account, has also increased, rising from 61 to 73 cases (of the 180 reported) since 1987. Local governments were the hardest hit, reporting 46 cases of fraud, but financial institutions, manufacturing and health service computers didn't escape either – the majority have been victims of computer fraud and abuse. Also badly hit by fraud is central government, computing services, communications, transport and the public utilities.

The average loss through fraud was £17,080, but five unnamed companies each reported losses of more than £50,000, while two others lost more than £100,000 each. Total

losses added up to more than a million pounds.

Of the 180 cases reported, 27 acts of theft – including data and software theft, using pirated software and the illicit use of computer systems for private work – affect companies. Many of these happen because of poor controls or safeguards.

However, the findings of the report are only the ones which get detected. Less than a quarter of the reported incidents were caught by internal controls – a considerable drop from the 31 per cent detected by internal controls in 1987 – and 60 per cent were discovered by accident. Many cases, the report acknowledged, remain undetected or undisclosed.



• Virus attacks now account for over 30 per cent of computer crime

Assembler revamped

ST owners who want to assemble Z80 code, D&S Software's Z80 Cross Assembler for the ST has had two important new features added, while being reduced in price to £49.95.

Now command strings from the assembler can be sent directly to EPROM programmers via the RS232 file transfer facility. This creates and sends an ASCII text file with the necessary start-up codes and also gives the option of sending a header file beforehand, if needed.

Conditional assembly is also supported by the assembler. Four directives have been added which can force the assembly of subsequent lines to be turned on or off, allowing the programmer to write comprehensive source code that can cover many conditions.

These can also help with debugging, since lines can be turned on by conditionally assembling them into the program and when the program is working properly they get turned off.

Z80 Cross Assembler is available for £49.95 from D&S Software on 0908 615104. ■

More power for low-cost Macs

Low-cost needn't mean low power, because owners of two low-cost Macintoshes, the SE/30 and the IIfx, can now increase the performance of their machines beyond that of their more upmarket stablemates.

The TokaMac SX accelerator card from Fusion Data Systems will increase performance well beyond the levels of the IIfx, Apple's fastest Macintosh, as well as 486-based PCs, the company claims.

Performance improvements are achieved with floating point intensive applications, which may be up to 300 per cent faster than the Macintosh IIfx. Graphics and desktop publishing applications can also run faster, reaching speeds of up to 185 per cent over the IIfx.

"We produced a blazing fast and reliable upgrade solution which puts those users at the front of today's Macintosh performance curve", said Fusion's president, Andrew Donoho.

According to the company, the TokaMac SX is the only Motorola 68040 accelerator available for the Macintosh SE/30 and the IIfx, and the only accelerator compatible with System 7.0. It is also compatible with most Mac applications. TokaMac SX has a suggested list price of \$2,995 (£1,837) plus \$50 (£30) for an 030 PDS adaptor card.

Available in July, further details can be gleaned from Fusion Data Systems on 010 512-338-5326. ■

Acorn carries on educating

Acorn continues its monopoly of the educational marketplace, with Acorn computers being used in 90 per cent of all primary and secondary schools.

During the second half of 1990, 74 per cent of all schools buying computers bought Acorn products compared with its nearest competitor which achieved a 24 per cent market penetration in the same period, according to a survey published by Taylor Nelson, the independent market survey organisation.

A quarter of all schools have BBC A3000 computers com-



• The A3000 – now the largest selling machines to schools.

pared with eight per cent a year ago. Currently sales of this machine are running at twice the number of the next most popular schools computer from Research Machines.

Chris Humphries, Acorn's Education Marketing Manager, said: "The most pleasing informa-

tion from these figures is that the BBC A3000 is now the largest selling machine to schools. In less than two years since its launch, the A3000 now accounts for virtually a third of all schools purchases, and its rate of purchase is growing at over 100 per cent a year." ■

Colour up your PC

PC users who want to include true-to-life grey scale or colour photos and images in their publications, Publisher's Paintbrush Version 2.0 for Windows has been released by ZSoft Corporation.

Suitable for both novice and professional desktop publishers, the package provides tools for creating artwork, controlling scanners, retouching and applying special effects to scanned images, and for adding high quality type to graphic images.

One special feature is the ability to be compatible with virtually any PC, thanks to its extensive hardware and software compatibility and complete device independence. ZSoft has included all its usual paint tools and also supports gradient fills, a tiling feature for creating special effects, and tools for intricate texture patterns.

The company has recognised that the success of computer based image processing depends on achieving realistic output easily. To this end, Publisher's Paintbrush offers 'complete device compensation' to correct calibration between the input device (a scanner, for example), the monitor and the output device (such as a printer). ■

As NCR's pen-based notepad, the 3125, sets the standard for the future,

THE WRITE STUFF POINT

GRiD, Toshiba, Psion, Atari, Kyocera, IBM, Lotus, Apple, NCR, Sony and Tandy. Some of the biggest names in the personal computer market. While they may vehemently disagree over which is the best machine you, the user, can buy, there is one thing they all agree on. By the end of the decade you, and millions like you, will be the proud owner of a computer that has no keyboard, no monitor and no disk drive. Yes, pen input systems are here and NCR's exciting 3125PC is the newest of the new...

The first 386-based pen input computer to hit the market will also be the first notepad machine to support both Microsoft Windows For Pens and Go Corporation's PenPoint.

According to its manufacturer NCR, the 3125 Notepad will be the machine to popularise pen-input technology and demystify

computers for the technophobic masses.

"If you know how to write a telephone number in a pocket directory, jot down the time and place of a meeting on a calendar or fill out a form, you know how to begin using this computer," says Alasdair Macgregor, NCR's UK marketing manager.

HANDWRITING READER

The NCR 3125 is a portable 386 which uses a cordless pen to input data. One of its most advanced features is that it actually recognises handwriting as opposed to simply using touch sensitive icons as with most previous pen input systems. It can recognise both upper and lower case letters and even adapts to individual writing styles.

The 3125 will receive a major marketing boost from the fact that it will be the first notepad to run the two major operating systems developed specifically for pen input devices.

Microsoft has announced that Windows For Pens will be available before the end of the year. A modified version of the popular Graphics User Interface (GUI) system for standard PCs which use keyboards, Windows for Pens, will make Windows available to pen-input users. As well as adapting existing Windows applications, it will also allow for new applications that take advantage of pen-input devices' facility to interpret written commands.

WINDOWS FOR PENS

Go Corporation's PenPoint, which is due for release towards the end of the year, will also be supported by the 3125. It is a completely new operating system, specifically written for pen



• The 3125 also offers the first commercial implementation of a pen-based Windows 3. Microsoft is known to be keen to further distance itself from the IBM platform so when Big Blue eventually gets round to releasing its own pen-input machine in 1992 or 1993 don't expect to see a version of Windows running on it.

input devices. Whereas Windows For Pens is suitable for people who already have some knowledge of working with computers, PenPoint is geared towards people who are new to computers.

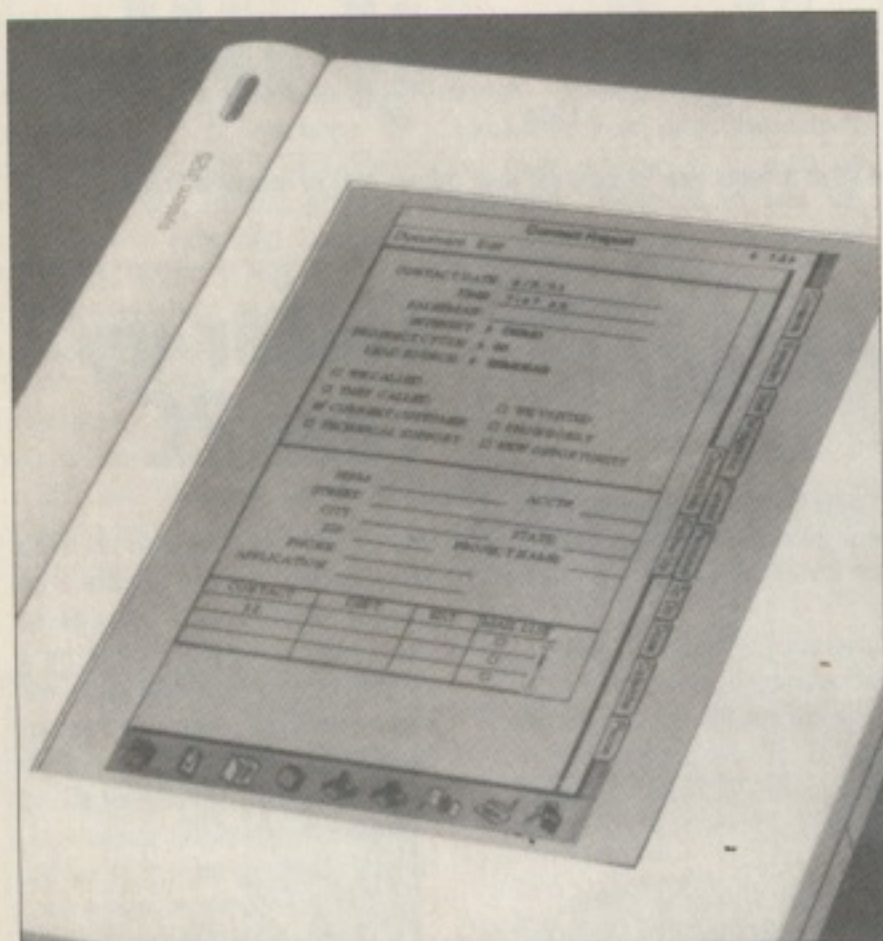
"We recognised that this new class of computer required a fresh software approach to realise its true potential," reckons Go chairman S Jerrold Kaplan.

PenPoint features a simple to use front end which Go has termed a Notebook User Interface (NUI) which, the com-

pany claims, makes the system easy to learn. It does away with concepts such as 'running an application' and 'front end', putting in their place a notebook-like arrangement; you turn the pages using the pen, and each 'page' can contain a number of applications running concurrently.

So, for example, a page of word processing can have a block embedded in it which contains a drawing program or a simple spreadsheet.

NCR will be offering people who buy the 3125 a choice of



• The NCR 3125 features a fast 20MHz 386SX processor and is fully PC compatible. However the unit's most innovative feature is its Filofax style interface which can be written to just like a diary

THE NCR 3125's STATE-OF-THE-ART SPECIFICATIONS

Aside from its innovative operating system the NCR 3125 is also a powerful 386SX portable:

- Based on an Intel 80386SX microprocessor.
- 20MHz processing speed.
- 16Kb of cache memory.
- 2Mb or 4Mb of RAM with 80ns access time.
- 512K EPROM including: 128Kb Sytem/VGA BIOS. MS DOS 5.0 kernel. Character recognition software. Keyboard/mouse emulator.
- 9.8-inch 640x480 resolution VGA mono LCD screen supporting 16 grey shades.
- IC option card and slot.
- Interface adaptor including: one 800x600

VGA interface, one parallel interface, one serial interface, one full sized PS/2 keyboard interface.

- Fast charge Nickel Cadmium battery pack.
- AC power adaptor.
- Cordless digitiser pen.
- Non-volatile flash erasable programmable ROM (EEPROM) memory for protection against data loss.
- Costs £3,195.

OPTIONAL FEATURES

- 4Mb DRAM expansion.
- 2Mb or 4Mb EPROM expansion.
- Docking Station, including: 3.5" 1.44Mb floppy disk drive.

- Choice of 30Mb, 60Mb or 120Mb removeable hard disk.
- one 800x600 resolution VGA connector.
- one parallel interface.
- one serial interface.
- one PS/2 keyboard.
- one IC card expansion slot.
- Fax/Data Modem IC card and software. Fax: 9600bps (V29), Data: 2400bps (V22bis).

OPTIONAL KEYBOARD

- Workstation: 102 total keys. 12 function keys.

OPTIONAL VIDEO DISPLAYS

- Standard features:

- 80 characters by 25 lines.
- 640x350 EGA graphic mode
- 720x400 VGA text mode
- 640x480 VGA graphic mode
- Graphics capability

OPERATING SYSTEM ENVIRONMENTS

- DOS for Pen Computing
- Microsoft Windows For Pen Computing
- GO PenPoint

PHYSICAL DIMENSIONS

- Height: 25.7mm
- Width: 248mm
- Depth: 297mm
- Weight: 1.35kg (1.81kg with battery and hard disk)

PRINTS THE WAY...

COVER FEATURE

HOW PEN-INPUT SYSTEMS WORK

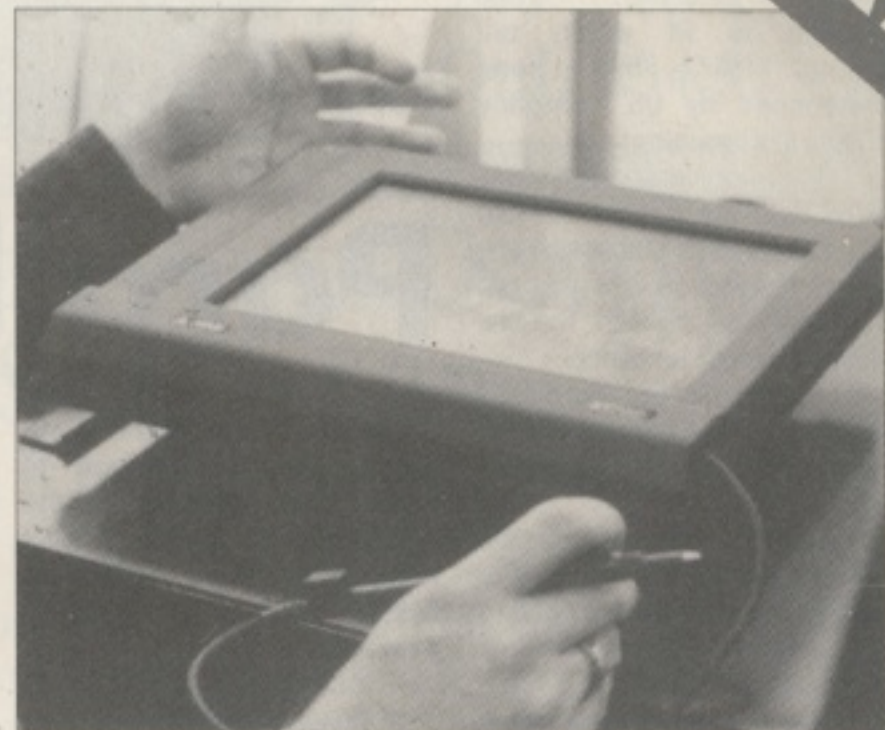
Pen input systems work via the interaction of a stylus or lightpen with a pressure-sensitive, electromagnetic or laser grid generated across the surface of a screen. This enables the operating system to detect its position and whether it's making contact.

Handwriting recognition is a much more complex process. A typical system can occupy as little as 100K of code and process about three characters a second, but the success of the system depends on

a large number of variables, each of which have to be 'learnt'.

Any handwriting translation (HWT) system also requires a spelling dictionary and the ability to distinguish between characters that overlap and touch, are of mixed size and case and include numbers and punctuation. Any system requires some familiarisation with the person using it. Accuracy rates of over 90 per cent are not uncommon, but four out of five words is the average.

Their disadvantage, though, is that with current technology, they'll always make the same mistakes no matter how long you use them - you rather than the program must change your handwriting to suit them if you wish to increase the accuracy rate. This is because HWTs have to compare written word shapes with stored templates or prototypes. The PenPoint system is innovative in this respect though as it allows you to build a number of your own prototypes.



• Atari's surprise star of the year is the ST Style, fully ST compatible, featuring a modified GEM user interface and flash memory card storage. The company is also believed to be readying disk drive versions of the machine, but neither will be available until early next year

either Windows For Pens or PenPoint to be bundled with the package. Both operating systems are compatible with existing PC systems so that files and data inputted into the Notepad can be downloaded to standard PCs. Until they have been officially released, the NCR 3125 will be made available with a much more basic system called Pen DOS, which only allows for very simple applications.

If you know how to fill in a form, you know how to begin using this computer

"For users in the field, for users who find a keyboard an impediment to data input, for users struggling with time consuming paperbound procedures, the NCR 3125 offers a revolutionary cost effective solution"

says Michael Kelville, director of product marketing at NCR.

Perhaps the machine's most innovative feature though is the Filofax style interface which runs under PenPoint. This Notebook User Interface emulates the pages of a diary or jotting pad.

Notes are always live text and can be added to at any time and in any way the writer wishes. The only difference is the physical nature of the screen and paper - the former scrolls where the latter needs to be turned.

With the NUI, a user can flip between pages and always return to the point at which the page was last visited. The notion of opening a document, scrolling to the end, adding some more data and saving it, is out of place here. It's now an anachronism. With the current state-of-the-art you have hundreds or thousands of pages which appear to be running simultaneously.

An automatically generated contents page precedes the pages grouped under any subject area and you can create sections of groups of pages that

can act as chapters. These reside as page labels on the edge of the display which can be 'touched' to be activated. In this sense the data is being organised along the lines of files within folders, except that rather than opening a new document into an application, one has to turn a page to affect the function.

Frequently used notebooks can be put in a bookshelf area to be taken off and opened as desired. Up to 100 pages of mixed text and graphics data are available at any one time. ■

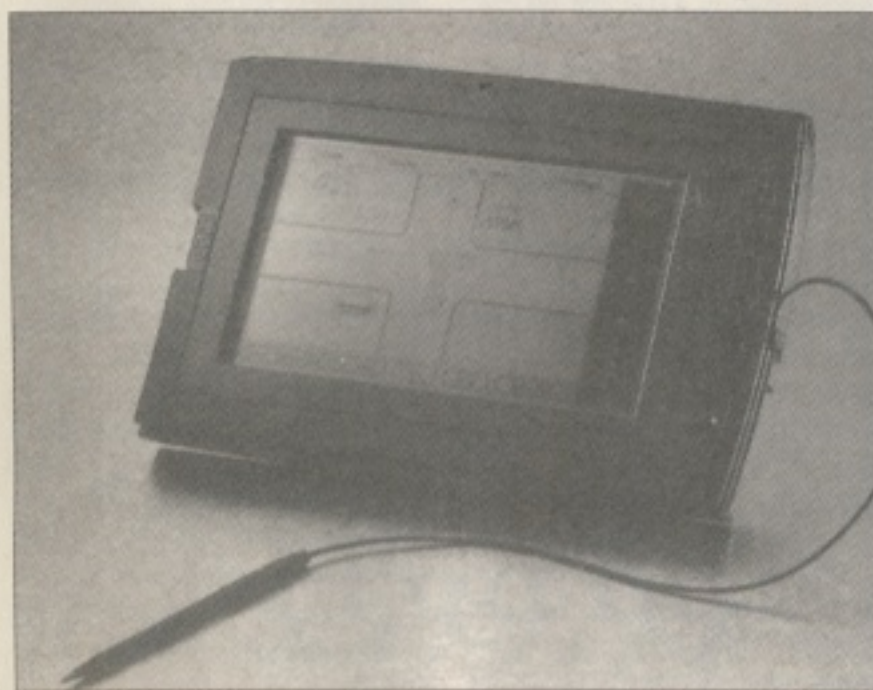
ACTIVE GETS IN ON PEN-INPUT DISTRIBUTION DEAL

A UK-developed pen-input computer with a claimed battery life of up to 12 hours is on the verge of a major distribution deal.

Active Book Company, run by ex-Acorn founder Herman Hauser, hopes to get the edge in the new pen-input market with the European announcement of its Active Book - a device that enables people to exchange files with a PC as if they had Windows running.

The computer's power consumption has been kept down by using a static design of Acorn's extremely fast and powerful ARM RISC processor, which uses only a fraction of the power of non-static designs. The chip normally runs at 20 million instructions per second (mips), but power has been scaled down to 12.5MIPS peak and 5mips average.

The operating system, called Open Book, is claimed to be able to handle hand-writing recognition, voice recording, picture recording, direct e-mail and fax link up. ■



• The 10MHz 8086-based GridPad was the world's first laptop to offer hand-writing recognition - albeit at rather slower rate than the NCR. But Grid is expected to release a faster, colour version later this year.

EXPRESS COMMENT:

Pen-based computing is essential. Not only essential to users, but crucial to the well-being of the computer industry. This is the view of many market pundits, who feel this new and revolutionary way in which we interact with computers will bring salvation to a market reeling from recession, product saturation and fierce discounting.

Laptop computers are reported to be on the decline. The PC market, as revealed by Express last week, is fragmenting with no clear market leader, but activity among the heavyweights is frenetic.

An estimated \$3.5 billion carrot is the catalyst - a best estimate of the impact of pen-input computing offered by Massachusetts firm BIS Strategic Decisions.

So why the revolution? As one observer commented, pen-input will "shatter the glass ceiling" that prevents new users entering the market. And for the rest of us, it could well change the way we organise information on computer.

Keyboard-based computing has a years-old reputation for being unfriendly to the novice. Keyboards are cumbersome devices, thus not suited to convenient portability so much needed by the travelling business community. And, in the absence of formal keyboard training for the masses, many users never aspire beyond the time consuming 'two-finger' method of data input. Even mice and WIMP interfaces fail to provide the ultimate solution.

Many business people prefer to carry a Filofax rather than an electronic personal organiser, and here lies the reason for revolution.

A Filofax is a pen-input database. It is easy to use, for all of us are taught how to write with a pen. Adapt that method of input to a computer and suddenly we have friendly, truly portable and potentially market-busting PC performance.

US-based Forrester Research predicts anywhere between seven and 54 million customers for pen-based computers, prompting Forrester president George Colony to describe it as "a major thunderstorm".

But there is little calm before this storm - Toshiba, Psion, Atari, Kyocera, IBM, Microsoft, Lotus, Apple, NCR, Sony, Tandy - all the big names are reported to be hard at work and substantial investment capital is being directed at start-up operations such as Go, Slate, Pensoft, Pen Pal and Montezuma.

As with any deluge, there is bound to be turbulence and one factor could be cost. Estimates range from £1,500 to £4,500 for an effective pen-input PC. Other causes for concern are substantive handwriting recognition, for true and effortless interaction, and the high cost of colour displays.

However, as has been the case time and again in the computer industry, specification will no doubt rise in inverse proportion to price as market forces are brought to bear.

At any rate, it won't be long before PenPads dominate sales.

PHONE A BONE

A bone-conductive, wireless voice transmission (a telephone handset), small enough to fit within the human ear, has been announced by US company Norris Communications.

The new technology combines both the microphone and the receiver on a button-size unit about the size of a hearing aid that fits inside the ear. The unit weighs only half an ounce.

Bone conductive technology sends vibrations through the ear bone structure, to transmit sound.

Two new versions of the wireless product, one a cellular version, are being prototyped, a representative from Norris Communications said.

The products are a hybrid of the bone-conductive technology developed for the National Aeronautics and Space Administration by the inventor, Elwood Norris, who is also president of Norris Communications.

Bell Atlantic, which is the parent company of seven local operating telephone companies in Mid-Atlantic states, has paid \$228,000 for a field trial of the "bone phones," Norris said.

The implications for computing may at first not appear obvious, but such devices seem an ideal adjunct to portable computer users.

Express waits with baited breath for the first announcement of a 'bone-modem' but meanwhile interested micro-phone users should contact Elwood Norris at Norris Communication on 0101 619/679-1504. ■

TOMORROW'S CUTTING EDGE

Seriously fast transputers are just a few teraflops away...

Parallel power

In the next four years, computers powerful enough to model what goes on in the human brain, or to predict climatic disasters in time to prepare for them, will be available.

Tasks such as these require such huge quantities of data to be processed that even the fastest machines currently available would need decades to finish their calculations. This time could be cut down to only a few days when machines which can perform a million million calculations a second, or a teraflop,

become available.

Parystec, a small German company, has revealed plans for its GC range of computers, the most powerful of which will operate at just under half a teraflop. This machine, the T9000 Transputer GC-5/16, will use parallel processing to achieve this speed, using just over 16,000 transputer chips.

The company is hoping to increase this power four-fold by making a few minor modifications and make it a teraflop machine by the end of 1993.

To speed up data transfer

between the processors and memory, where information usually gets slowed down, Parystec has included the "virtual channel" with the T9000. This sends information in packets, labelled with their destination, which can take any path and be rerouted if necessary.

Previously, transputers only had preset routes for sending information.

Neither the transputer or the GC computer has been tested in practice, however, and the T9000 is not to go into production until the end of this year. ■

ICOT's Multi-PSI - the fifth generation

A glimpse of what computers could be like in the future has been announced by Japan's Institute for the New Generation of Computer Technology (ICOT), the association that develops fifth generation computers and creates advanced software for parallel processors.

ICOT's latest developments are a variety of systems that solve

complicated problems and scientific questions. These range from a faster way of designing large-scale integrated chips, to making legal decisions by searching and comparing past judgements.

The software runs on ICOT's first version of its parallel processor, the Multi-PSI, which interconnects 64 computers to a

main computer. ICOT is also developing an advanced parallel processor which can handle data across 512 computers simultaneously.

Development of ICOT's fifth generation computer project is expected to escalate during 1991, as this is the last year of the project. ■



• Your fax machine can now do the same job as a colour laser printer or a colour photocopier.

Fascinating facsimiles

Why use a colour laser printer or a high street photo-repro bureau when everything could be done on a colour fax machine?

Not only can colour faxes be sent with Sharp's FO-9000, but there are many other possibilities. By using a computer fax card, colour pages could be sent to your desktop fax, as well as to others, thus doing the same job as a colour laser printer, if not a colour photocopier.

The machine is the world's first full-colour desktop fax system which operates over normal telephone lines. It is based on a sublimating-dye printer which uses a heat-sensitive ribbon that reacts with special polyester-based paper. It takes three minutes to produce a high-quality, glossy 8-by-10 inch photograph.

This new technology doesn't come cheap though, at least for the moment, as the FO-9000 costs \$31,995 (approximately £19,630).

To learn more, Sharp can be reached on 061 2052333. ■

IS THE HARD DISK A SPECIES UNDER THREAT?

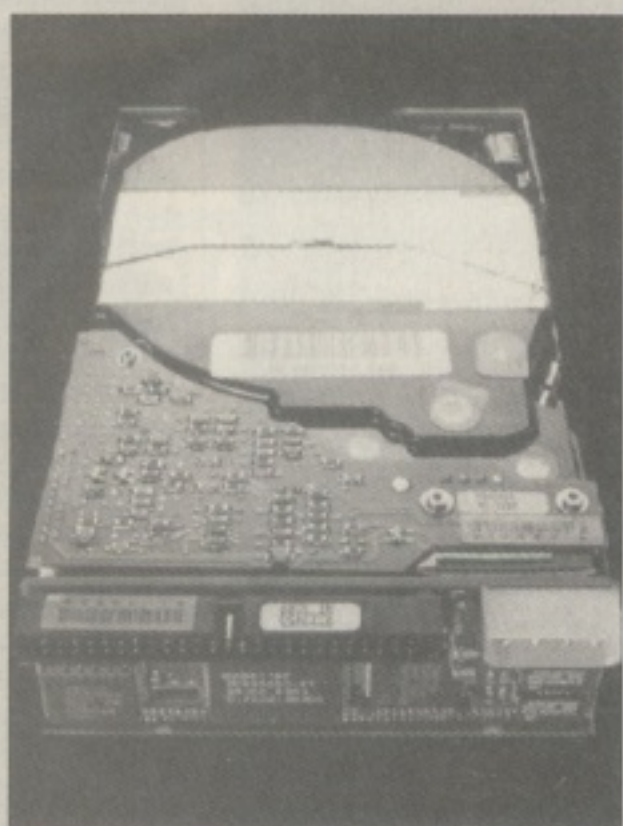
In the near future, computer users could be saving data to rewritable optical drives instead of the less capacious hard disks used today. How soon all this happens will depend on many things - price being a major consideration, but the sooner the technology becomes available, the sooner it will be used.

To aid progress, Sony has announced a pair of 3.5 inch optical disk drives that store up to 128 Megabytes of information on a 3.5 inch magneto-optical disk. The drives have been designed for PCs and Macintoshes and comply with the ANSI/ISO standard, meaning that disks can be changed with other drives meeting that standard. IBM has recently announced it will be using drives with similar specifications in its machines.

Internal and external versions of the drives are available: the internal version can be fitted into a variety of hardware, while the external model uses a SCSI-2 interface. Both drives have an average seek time of 40 milliseconds and a four-megabyte burst transfer rate.

Sony hopes to see the drives retail for below £1,000. From there it could only be a matter of time before they are as inexpensive as hard drives.

For further details, contact Sony on 0101 201-930-7812. ■



• A vision of the future? Sony has announced its optical disk drives. These SCSI devices will soon be found in forthcoming desktop machines from IBM

Upgrade gives PC users a range of options

Wouldn't it be convenient if all you had to do to improve the speed of your computer or disk drive was change a cartridge, instead of having to pull off the machine's case and keep track of hundreds of screws and cables?

Tandon's Option range of upgradeable PCs lets almost anyone upgrade the CPU or add RAM, disk and hard drives, or other peripherals. All the user needs to do is lift up the front panel of the machine and insert a cartridge in a slot - in a similar way to putting a video tape into a VCR.

The basic Option machine comes without a CPU or hard disk: these have to be purchased separately, but this gives users the flexibility to customise their system.

The range will be available in North America in July, and is

favourably priced in comparison to the company's range of standard, non-cartridge computers.

Generally, the more power, speed and storage you buy, the less you spend in comparison to the existing technology. For example, the low-end Option machine with a 16MHz 286 and 40Mb hard drive costs \$2,005 (£1,230), while Tandon's comparable non-cartridge machine retails for \$1,459 (£895).

However, an Option with a 486/33MHz CPU and 200MB hard disk sells for just over \$4,100 (£2,515) which is considerably less than the \$7,299 (£4,477) non-cartridge version.

It is not known when the range will be released elsewhere.

For more information, Tandon can be contacted on 0101 805-529-8227. ■



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Please call for further details.

SUPER-VHS 8802

At last, the Rendale Super-VHS 8802 is available. This high quality unit is based around the Rendale 8802, and offers additional features such as:

- Super-VHS in and out.
- Hardware controlled wipe patterns.
- Hardware controlled fade to black.
- Cross fade between Amiga and video.
- Internal mode switchbox.
- Amiga only preview facility.

£599.99

THE BIG ALTERNATIVE SCROLLER

It's new, it comes in a black folder.

Price: £49.99

It's simple to use, and it's here! The Big Alternative Scroller is now on sale. This is a self-contained titling program on one disk. The software enables you to type in credits, titles, display information etc, and scroll them either vertically or horizontally on your monitor screen and likewise onto video tape.

This program is so simple to use that you hardly get a manual, because you don't need one. Everything you could ever need is on the screen for you.

This program requires 1 megabyte of Ram.

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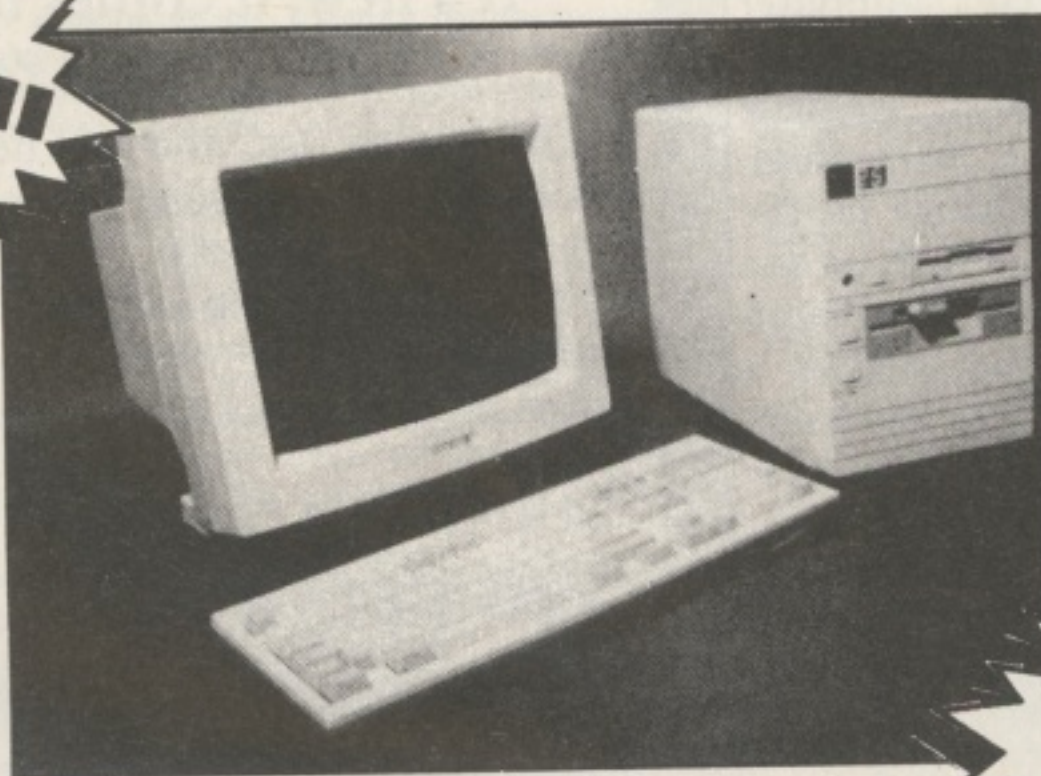
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Adapting text

PRODUCT: Teletext Adaptor
NAME: OPT-III Teletext Card
COMPATIBILITY: PC

The teletext services offered by the BBC and ITV are not the most user friendly of systems. Not only do you spend ages waiting for the page you want to come up but you can't save pages, print them or view pages which are no longer being broadcast.

The OPT-III Teletext Adaptor card solves these problems. It can automatically record page updates onto the hard disk of your computer so that you can read them at your leisure.

Software provided with the card also allows you to print out the pages or save the information contained on them as ASCII files for insertion into other programs, a spreadsheet like Lotus 1-2-3 for example.

The OPT-III is a half-sized single slot PC card with a television aerial socket on the back. Simply install the card, stick in the aerial lead and you are ready to go. You do not even need a television set as it will work with a normal monitor.

Manufacturer Optimum reckons it will mainly appeal to people who want to keep track on stocks and shares as this information is constantly updated on both the Oracle and Ceefax teletext services.

Price: £195
Availability: Now
Target users: Home users and small companies dabbling in stocks and shares, universities and market research agencies
Contact: Optimum Technology: 081-203 0220
Perceived Competition: Microtext teletext adaptor.

Filling a gap

PRODUCT: Book-sized 386 PC
NAME: Carry 1 9000 Series
COMPATIBILITY: PC

The Lotay Carry-1 is portable, but it is not a laptop. It's also powered from the mains so you won't see anyone tapping away at it on the train home from work.

Instead it is aimed at people who really want to take their work home, by actually taking their office PC with them.

It offers the power of full-sized desktop 386X in a compact, easily portable package. Its CPU is about the size of a hardback coffee table book and weighs just 2kg. Based on a 80386SX 32-bit processor running at 16 MHz, it is available with 1 to 4Mb of RAM and up to an 80Mb hard disk. A 3.5 inch



• Fill the gap between the portable and the laptop - the Lotay Carry-1.

WHAT'S NEW

Your weekly update on straight hardware and software news with no frills.

Flexible printing and indexing



• Picking up where filofaxes left off? DynoPage and Dynodex help the busy executive keep on time and up to date.

PRODUCTS: Versatile printing utility and computerised address book
NAMES: Dynopage and Dynodex
COMPATIBILITY: Macintosh

Are your business affairs in a mess, and do you have an office to match? If so, then two software packages from Computers Unlimited could be for you. Dynodex is a personal database that helps users to enter, organise, search, merge and sort names, addresses, phone numbers, notes, dates and any other information. It stores up to four phone numbers per entry, and can automatically dial them (tone or pulse) through the sound or modem port. Any selection of records can be printed by Dynodex onto double-sided Filofax and other personal organiser page formats.

Dynopage, is a printing utility that prints any Mac file to any format, including personal organiser pages, mailing

labels, index cards, thumbnail reductions or even double-sided pages. Many pre-designed templates are included, such as index cards, thumbnails, tri-fold letters, as well as a number of different page and label sizes. Calendar, expense and other diary pages have templates provided too. Users can also create custom formats for odd-sized binders, package inserts or whatever else is needed. Both packages include the software, manuals and a supply of Filofax-format pages.

Price: £99.95 each
Availability: Now
Target users: Personal database users.
Contact: Computers Unlimited: 081-200 8282
Perceived competition: Simple page, label or other printing programs; Filofax and electronic diary manufacturers.

1.44Mb floppy drive is included as standard with each model.

The package includes either a 9 inch mono VGA or 10 inch colour VGA monitor and an 81-key keyboard weighing 0.7kg.

"Despite its small size the Carr-1 386 will run all the software that much larger and more expensive PCs can, including memory-hungry applications like Windows 3. We believe it will fill a gap between portables and laptops and full-blown desktop PCs," says Lotay's managing director, Indy Lotay.

Price: £895-£1,825
Availability: Now
Target users: The business market
Contact: Lotay Computers 081-961 2706

Perceived Competition: The Brick and the Tiny PC

Safe data

PRODUCT: PC software security lock
NAME: Data Sentry Lite
COMPATIBILITY: PCs

The original idea for Data Sentry Lite was inspired by the infamous news story about the RAF officer whose laptop containing military secrets was stolen from his car.

According to Robin Nyman, Accounts Manager at Rainbow Technology, the company immediately realised that there was a gap in the market for a simple to use but foolproof software security system.

The Data Sentry File is simply a hardware 'key' which fits into any PC's

parallel port. The user can allocate an area in the computer's memory which cannot be accessed unless the key is in place.

Up to four different secure areas can be designated, each being accessed by a different key. This means that four users can work on the same PC without knowing what each of the others is doing. Software such as spreadsheets and word processors can be left in an unsecured area, while personal files and data can be saved into a secure area.

Primarily aimed at laptop users, Rainbow Technologies also reckon that it is perfect for situations where more than one person will be regularly using a PC such as in schools and colleges.

Price: £60
Availability: Now
Target users: All PCs users who share machines
Contact: Rainbow Technologies Ltd: 0753 541512
Perceived Competition: None.

Notable power

PRODUCT: 386 Notebook PCs
NAME: Kamco 386SX/20Mz
Kamco 386/33MHz
COMPATIBILITY: PC

Kamco has launched into the portable market with two 'uncompromising' 386-based notebooks.

"We are genuinely providing the mobile or off-site worker with a PC to perform primary tasks at or between locations with no compromise on features," reckons the company's



• The new Kamco 386 laptops offer the full functionality of a desktop for the person on the move, according to the company.

managing director Zygi Kamasa.

The Kamco 386SX/20MHz and 386/33MHz both have A4 footprints and weigh 2kg. They feature backlit Liquid Crystal Display (LCD) screens with a choice of CGA or VGA resolution, full 101-key keyboards and slots for modems, fax modems, maths coprocessors, printers and mice.

They can be either battery or mains powered.

The higher specification machine, the 386/33MHz, is a DX-based machine with 2Mb of RAM expandable to 16Mb and a 40Mb hard disk.

Price: 386SX - £1,595; 386DX - £2,295
Availability: Now
Target Users: Off-site business users
Contact: Kamco Computer Systems: 081-963 1031

Perceived Competition: Panasonic, Sharp laptops ■

Can you afford **not** to join?



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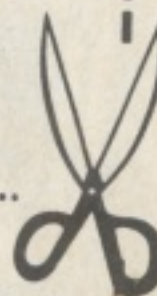
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EXPRESS MAIL

Welcome to the letters pages that take it on the chin.

Yes, this week it's a 'GET YOUR ACT TOGETHER OR ELSE...' edition with Haydn Fitz-Williams doing his best to please all of the people all of the time. So, don your helmets and flak jackets and wade into this furious war of words...

Arch cynic

Well, all the brave words from the early days are shown to be the load of balls they would always turn out to be. I refer, of course, (oh yeah, obvious really - HF-W) to the steady erosion in columns on individual machines.

Now the Arc is gone because "the powers that be have decided it's curtains". What does this mean? "We're a bit over budget, so chop another column" or "Chop the column that brings in the least advertising?" (Well, your readers are entitled to be cynical too.) And of course you can always fall back on that old chesnut "...news of the machine will continue in the news pages ..."

Well, it is not the same as having a few column inches every few weeks. And to say the column "never really took off" is another empty hack-ism meaning "here's a few words of empty justification".

Yes I do have an Arc, but

there are three other machines of other types in the house and more at work so don't accuse me of being machine sensitive.

You started out claiming to be all things to all and the truth is you couldn't hack it so just have the decency to admit it.

Meanwhile my £50 a year will go towards something more useful - one of those PC emulators that you were only two weeks late announcing...

Zebra via CIX

HARD HITTING stuff Zebra, but to put you straight the column was cut simply because it was felt it didn't generate enough interest among readers. The point being, we could hack it, like we've always been able to hack it, but if we don't get feedback then can we do?

We dropped the Arc column as a trial for a couple of weeks and we had two letters complaining. So where were you then, eh Zebra?

Sq what's to do? Well, this maybe an old chestnut too, but how about if we

reinstate it? All you and all the other Arc owners out there have to do is write a postcard marked 'Restore the Arc now or you're so much dead meat' and send it to Andy Storer at 30 Monmouth Street, Bath BA1 2BW. If he gets 20 he'll restore it. Simple as that. Oh, and by the way, we ran the Arc PC emulator story the same day Acorn officially announced it.

Comic reader

Could I just say that I think you were quite right with your replies to people's letters when they complain about the dropping of their computers from your mag.

I started with an Atari 400, then upgraded to an Atari 800XL, C64, Atari ST and now an Amiga. I never regretted the demise of the above mentioned comps, but I do hope you realise that the same is true of mags.

Well the gist is that I have decided to drop your mag as there is now a cheaper weekly with more news and reviews. So goodbye and good luck.

Jeff, North Shields, Tyne & Wear

THANKS FOR that Jeff and here's a fiver for your trouble. I reckon that should buy you at least 20 copies of *The Dandy*.

Amiga crazy

You've gone Amiga crazy. Please don't try and justify yourself by

saying the Amiga is happening at the moment, etc, because I and other people who want to know can buy umpteen Amiga magazines. Are you being forced into producing the first weekly Amiga magazine... How can you justify charging 88p for 14 pages of *Express* coverage.

The rest is that rubbish Shopping section, which again is filled with Amiga ads. You say things like Macs are the bees knees for DTP, graphics etc. Just because the editor has a complex about spending all that money on his Mac doesn't mean to say he has to justify his purchase through the pages of *Express*.

Scott Robinson, Llandrindod Wells, Powys

THE AMIGA is 'happening', yes. But again I ask you to just read the magazine - I don't think we go over the top on Amiga news and reviews. As for 88p for 14 pages - I wonder if we are reading the same mag. And yes the Mac is the bees knees for DTP, graphics etc, but the editor doesn't own a Mac - he uses the one at work. If truth be known he owns a ST, Compaq 286, PC Engine, QL and a Gameboy. And yes there's no PC Engine, QL or Gameboy columns are there? No.

Future format

I'm sick of all these letters from 8-bit users and Archie owners slagging off the mag for concentrating on the more popular

More ultra-mesmeric giga-cash loot attraction utilities - parts 11 & 12



• Want to make a million with your omputer? Then become a virtual military instructor.

11 The premise around which it is based on the unnatural luddite fear of technology. What I have done is provide a simple series of computer training courses for adults that are designed to enhance their fear of the unknown and keep them reliant on me for training, software and even machines. The unsuspecting client signs on for a 'free' assessment which they do well in. The assesment finds areas of strength that will have them signing on the dotted line for courses and reaching in their wallet for software that I sell. Each course is in several modules and each module almost teaches the student to complete a task. That way they have to keep on signing and keep on buying software.

On the odd occasion when a student realises what we're up to, we take them on as a rep and take over another area using their expertise. The net result is that I make profit selling software and organise courses that do

no more than a good tutorial in a magazine or with the software.

Johann Reamwell, London

12 My loot attractor is straightforward and simple. Since the current arms embargo to Iraq includes military training, all you have to do is put your Amiga in a suitcase, buy a copy of every flight sim available and catch a plane to Baghdad. Then you advertise your services as a military training instructor, teaching Iraqi pilots the weak points of advanced US combat aircraft. Then when Saddy gets lippy again you'll be quids in even more. Of course, you won't ever be able to return to the UK again but as with all loot attractors it's a small price to pay for a life of luxury.

Geoffrey Whitehead, Carlisle

ON THE COUCH

This week our guest psychiatrist Dr. Clare Anthony uncovers the inner realms of MARK SMITH of LIVERPOOL'S fevered mind. But the leather couch and mahogany panelled walls of her virtual office await you too, so just write in with the name of your machine, your favourite software, and the machine you'd most like to own and she'll do the rest of the biz.

OK, that's enough chummy intro context - here's the address: Leather Couch Clare, *New Computer Express*, 30 Monmouth St, Bath BA1 2BW. Now get your pens out!

Right Mark, will you stretch across the leather please - here, bite on this block of wood, fine, now let's begin...

- MACHINE OWNED: CDTV
- FAVOURITE SOFTWARE: Welcome Disk
- DESIRED MACHINE: Spock's Control Panel

CDTV eh? Mmm... After consulting *Sub-metaphorical Mechanics Vol 12*, I found the entry. Consciousness Dilating Transitory Vortex. Yes, I'm afraid it's already fully documented and is very serious Mark. As we Freudians know only too well, Mr. Spock, and the level of technology embodied in his control panel, represents an almost unparalleled omnipotence in the search for objective knowledge. While CDTV may represent one of the highest throughputs of audio-visual stimulus known to mankind, it certainly can't manifest the sheer input bandwidth offered by Spock's unit.

As such, we're dealing with a temporal dichotomy. In short, Mark, you have a problem that will take you at least three hundred years to overcome. Unfortunately, useful though it may be, Commodore's 'Welcome' disk is unlikely to help you in this matter. You require a far more radical therapy. **PROGNOSIS:** Buy a MC² brain machine, connect it to your CDTV and plug the headphones into a mains socket. Then, after donning the special glasses, turn on the power. In less than one second, your synapses will overload with a sensory input almost equal to that of Spock's Control Panel.

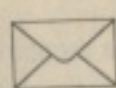
machines. I mean it's not as though you're offering a social service is it? Personally I'd like to see even more Amiga coverage and I like the pieces on kit I'll never be able to afford. I don't want to look backwards, I'm interested in what's going on now and in the future, not yesterday.

So come on, give me more and stop defending your multi-format coverage.

Mark Taylor, Brighton

WELL IT SEEMS I just can't win, can I? I think it's about time there were some changes. I may be you agree. So what about it? I think we should formalise this machine specific coverage

somewhat. So 8-bit and Archie users get writing in with pleas for re-instatement. Send a card to *Express Mail* at 30 Monmouth Street, Bath BA12BW with the name of your neglected machine. 20 cards is all it takes.

**Cover disk**

Every week I buy *Express* because it is informative, well written and nicely proportioned between the major computer types, PC, Amiga and ST.

Cover is also given to just about all other computers. However, did I buy the 27th June issue? Did I eek as like!!

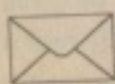
I own a PC. Why on earth would I want to subsidise Amiga and ST owners by paying an extra 62p for a game I can't play? I have more disks than I can shake a joystick at, so I don't want it even as a blank, (and what about tape users?)

Anyway, I'm confused as to the terminology used in your adverts for this event. I thought that "give away" meant...well...give away, not sell for 62p. Perhaps it would have been a good idea to produce a percentage of issue without the ST/Amiga game disk, at your normal price of 88p.

Carl Young, Nottingham

'GIVEAWAY' HAS never meant 'give away', come on!

If you want to miss an issue then that's up to you, but I'd have thought 62p for a blank disk is still good going when you can expect to pay between 75p and £1.50 otherwise. But since you have bucket loads of the things I expect 62p wouldn't have made any difference to you. Anyhow, what about the 75 per cent of our readers who own STs and Amigas?

**Pricey game**

I had to laugh after reading S. Felix's letter in *Express* 136, in

Win a Wacko prize!

What's a rom-wack? My A500 crashed and threw this out to the printer. Is it words of wisdom from the Guru?

rom-wack

PC: 024176 SR: 0000 USP: 03B5P4

SSP: 0FFFF2 XCPT: 0003 TASK:

03A6DB DR: 00000000 00000000

FFFFFFFF 0000FFFF 00000002

00000000 40008000 00043A48 AR:

0004000B 00057DA8 00001C818

00034FFC 0003A1FE 00039D6C

00000676 SF: 2141 0004 0017 2149

0000 0002 4176 0000 0000 0000 0676

00FC 0818 00FC 081A

N J Andrews, Birdlip, Glos

Well what does it all mean readers? I'll send a copy of Domark's stunning *3D Construction Kit* for the Amiga to the first person who comes up with the best answer ('best' in this case doesn't necessarily mean 'real' OK?) Just send your guru interpretation to:

'Corn circles are just the spurious output of an off-line celestial laser', 30 Monmouth Street, Bath BA1 2BW.

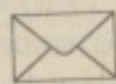
Non-amiga owners can also join in and the winner will receive a new game of my choice. You should address your letters to 'I know the Amiga crashes a lot, but I won't make bad taste comparisons with space shuttles as I'm far too mature, thank you' at the same address.

which he was bemoaning the cost of PC games. 'don't worry,' you cried 'when PC owners buy lots of games the prices will drop!' Or will they? Remember a few years ago, Amiga and ST owners were astounded at the price of games £25! 'Never fear,' cried the greedy software companies, 'just rush out and buy loads and loads of games and the prices will drop!' they enthused gleefully. We did. And what happened? Precisely. Now the bloody things cost an extra pound! And as for you PC owners? Well....

John Quinn, Wicklow, Eire

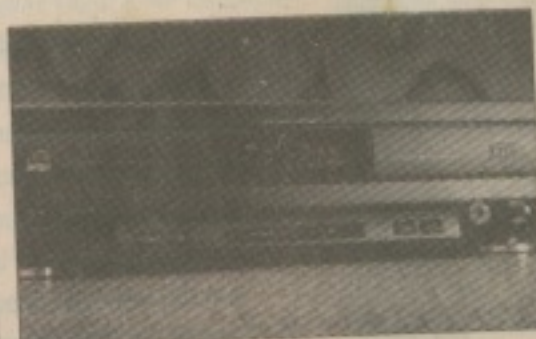
YES I'M AFRAID you're right John. History shows us, etc. But then there's a whole bunch of budget titles beginning to emerge for the ST and Amiga these days so something's changed!

But as for the current pricing I tend to agree. I think games should sell for at least half the price they go for. But then it doesn't bother me particularly, I think 95 per cent of them are utterly tedious.

**Shome Z80**

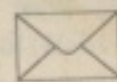
In *Express* 136, in the article showing the specification of Philips' CD-I machine, you mentioned a 16-bit Z280 chip. Is this chip a direct descendent of the Z80 and if so why was it not used by Amstrad for its new generation of 8-bits and could it be used for the second generation of SAM Coupé?

Leroy Fevrius, Vauxhall, London



• Is this Philips CD-I machine the forerunner of the next generation of Sam Coupés? - answer er...no.

WHOOAA THERE one minute Leroy. What second generation Sam Coupé? What new generation of Amstrad 8-bits? And after a frantic search through *Express* 136, what 16-bit Z280 chip? Are we reading the same magazine or is there a parallel universe out there somewhere?

**Forget it**

Your replies make me want to throw up. Why? Because you're just a smug know-all who edits everything down to make the writers look stupid and thinks he's smart by ridiculing them. Why can't you act more responsibly? A letters page should

Colin Blake, Haworth, Yorks

THAT'S ME just about done for this week and I can tell you if war is hell, these pages were like working in a meat packing factory. ■

**Write Now**

Write and tell Haydn Fitz-Williams what you think! Reach him at: *Express Mail*, 30 Monmouth Street, Bath BA1 2BW. Sorry, no personal replies, even with an SAE and remember, only SOME letters win a fiver!

**On-line mail**

Own a modem? Then squirt us a letter. *Express* has its own area on Aspects bulletin board (Telephone: 061 792 0260) where you can leave mail and upload/download files.

We also have our own conference on CIX. Why not give this on-line service a ring on 081-390 1244 and talk to us direct!

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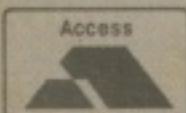
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GOLD DISK EXCLUSIVE

If you have even the slightest interest in desktop publishing on the Amiga, then chances are that you know Canada-based Gold Disk pretty well. Put simply, Gold Disk is the undisputed leader in Amiga desktop publishing products with such programs as *Professional Page*.

Although the company has only recently released updates of both *ProPage* and *ProDraw*, development hasn't slowed for a minute. Already the company is hard at work on *Professional Draw 3* which should be with us sometime in 1992.

According to Gold Disk's own Keith Hughes (who, incidentally, is a Brit), *ProDraw 3* boasts a vastly enhanced user interface and considerably faster speed of operation (let's face it, *ProDraw* needs it). New features are a little vague at the moment, but Keith assures me that *ProDraw 3* is going to be something very special indeed.

This announcement comes in the wake of the recent release of *DesignWorks* from New Horizons, a company better known for its *ProWrite* word processor. I'll be bringing you a

review of *DesignWorks* very soon, so stay tuned for that one.

By the time you read this, Gold Disk's long awaited *ShowMaker* desktop video system should have started shipping, so check the shelves of your local software store for that one. Gold Disk is very excited by *ShowMaker*, with words such as 'revolutionary' and 'simply stunning' being used with blatant disregard for the innocent.

Once again, I'll be taking a damned good look at this one, so expect a review within the pages of *Express*.

On the subject of Gold Disk products, PC-owning Amiga users may also be interested to learn that Gold Disk is hard at work on a PC illustration package that steals more than a few good ideas from Gold Disk's existing *Professional Draw* package.

Codenamed *GSDesign*, the program still has a long way to go before it is ready to hit the market, but already it sounds simply delicious.

According to Keith, although the program features the same user interface and even the same code as *ProDraw*, the company has built upon its

experiences with *ProDraw* to develop *GSDesign*. Using a powerful Windows-based interface, *GSDesign* looks set to take the PC DTP market by storm.

Another package that learns more than a thing or two from its Amiga counterpart is Gold Disk's recently released *Animation Works* system for the Macintosh. Mac users can now get in on this animation lark with their very own dedicated package.

"*Animation Works* was designed to allow absolutely anyone to produce good quality animations on their Mac," Keith told me.

Well, the Amiga has been doing it for years, so I'll be interested to see how *Animation Works* performs against such packages as Disney's *Animation Studio*.

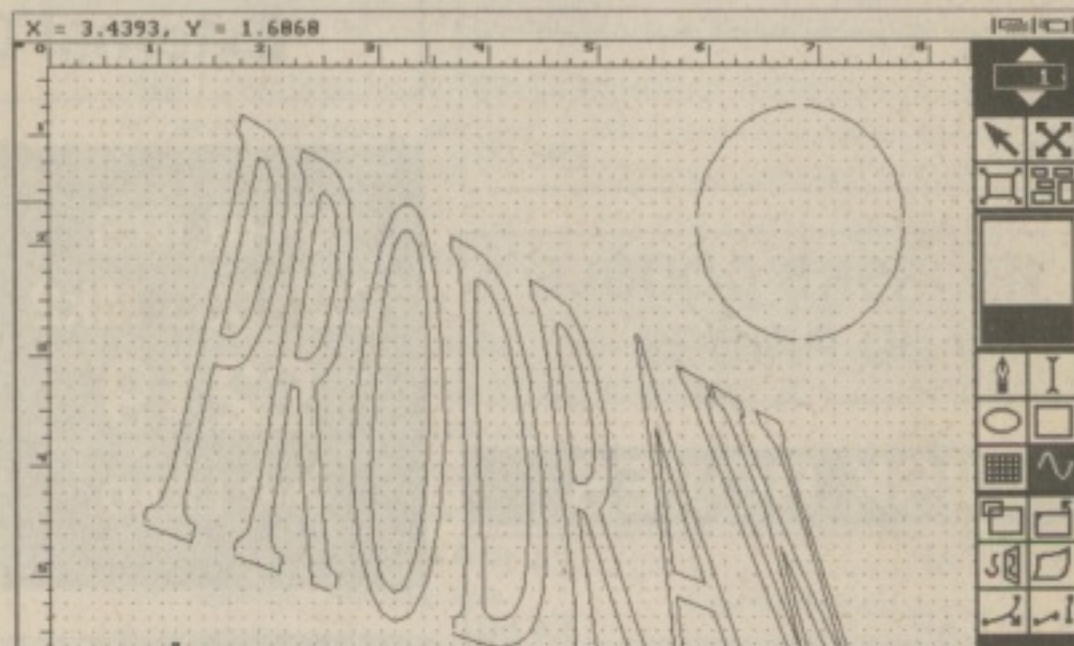
Once again, Mac owners should look out for a review of that one.

☎ You can find out more about any of Gold Disk's products by telephoning its British distributor HB Marketing on 0753 686000.

WHERE'S THE FONTS?

On the subject of fonts, wouldn't it be nice if you could actually buy a decent set of fonts for *ProPage*? I don't know about you, but I'm totally and utterly bored of *Triumvirate* and *Times*.

OK, Gold Disk does produce a range of fonts, but they're hardly earth-shattering stuff, are they? Especially when you compare them to the kind of fonts available for users of Mac and PC DTP packages.



• If you thought *ProDraw 2* was the ultimate in Amiga illustration packages, then keep your eyes open for *ProDraw 3*.

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What we need is a utility that can convert Mac PostScript and PC outline fonts to Amiga Compugraphic format. If anyone feels that they could do the job, then I'd love a copy of the program. Who knows, I might even send them a freebee game for their efforts!

NEW DISK MAG LAUNCHED

I receive some strange post at times. Take last week for example - two envelopes turned up on exactly the same day, both of which were addressed to 'James Holborn'. I haven't a clue who the hell this James Holborn chap is, but I thought I'd still open his post to see just what was inside.

To my amazement the first contained two lonely disks; there was no cover note, no nothing, so I was a little worried about popping them into my recently revived B2000 (I practise safe computing!).

The second envelope cast a little light on the situation. The two disks were actually the latest issue of a new disk magazine called Scanner. I'm a great fan of disk mags, so I thought I'd check Scanner out for myself.

To my surprise, it turned out to be good, very good. Packed with articles, reviews, utilities and a fair splattering of demos and some pretty decent games (including a great version of the classic

game Missile Command), Scanner is one of the best disk mags I've encountered since Martyn Brown's Newsflash.

In fact, Scanner is so good that my head almost exploded with excitement (film buffs will understand that one!).

Scanner can be obtained by writing to Telescan Computer Services, Handsworth Road in Blackpool. Don't ask me what its phone number is, because nobody will tell me either.

THE CABLE CLUB

Going still further into my rather empty postbag (write to me!), I found a very interesting letter from Barbara Yarwood. Barbara has recently set up a company

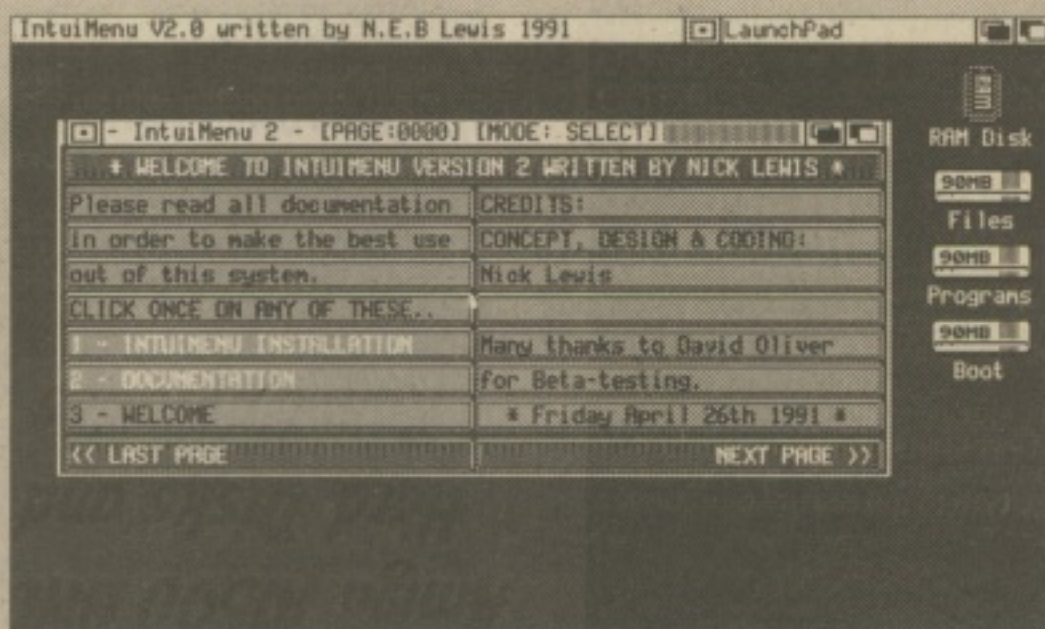
that specialises in producing leads for computers, especially the Amiga.

Barbara will make you a lead for just about anything, so give her a call.

Tel 0323 487030.

On the subject of leads, has anyone got a lead that will allow me to connect my Sega Megadrive to my Amiga 1084S monitor? (It's got a 'D' style connector on the back). I've had the megadrive for over six months now and it's been gathering dust just because I don't have a lead that will work with it. I've tried wiring the damned thing up myself, but it stubbornly refuses to work. If anyone can help me out I'll be eternally grateful.

Jason Holborn



• If you've ever wanted to load a program from hard disk without having to search through a maze of directories, then IntuiMenu is for you. Just click on the program you want an IntuiMenu loads it automatically.

THE BEST IN AMIGANUTTY PUBLIC DOMAIN

I thought it was time I gave a well deserved plug to my old friend Ray Burt Frost at the AmigaNuts PD library (0703 785680). Ray recently sent me a selection of disks from his bulging library. Here's a rundown of some of the goodies I encountered:

IntuiMenu (Disk 1075) - IntuiMenu is a great little program that will be of particular interest to hard disk users. It enables you to set up a mouse driven menu containing all your favourite programs. Just click on the one you want an IntuiMenu runs it.

Ten Pin Bowling (Disk 834) - I just had to mention this one. Written by Wacky Carrot Software (great name lads), this

is a ten pin bowling scores archiving system. Sounds fun, eh? Oh yeah, I'll warn you now - this is most definitely not a game, so don't buy it expecting to play ten pin bowling on your computer. Don't say I didn't tell you.

Jean-Michel Jarre Demo (Disk 271) - Jarre fans will love this disk which contains Amiga-ised versions of tracks from Equinoxe, Zoolook and Revolutions.

The Four Seasons (Disks 1080a/b) - Some hip and groovy guy called Vivaldi has come up with this great little jingle called The Four Seasons. If you're feeling all cultured, then impress your friends with this two disk set.

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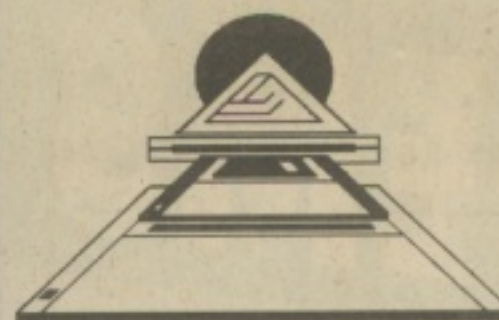
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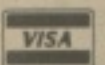
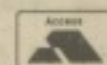


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ST

- More than just the STyle and Book on ST horizon
- Spruce up your documents with extra fonts
- Taking the pain out of typing with Abbreviator

NOT MORE STs!

Oh no, it's happening again. Just as the ST community prepared itself for the arrival of the STyle and Book additions to the ST range, Sam Tramiel lets slip that there are two more STs in the Atari pipeline.

Quite what these machines will be like is uncertain. All that Sam would say is that they're, "wow machines". When asked if the machine would be an

extended STE, he declined to comment, although this seems one of the more likely options.

If the machine was an extended STE, what kind of features could we expect? Well for a start, Atari has long expressed an interest in 1.44Mb floppy drive units, so this seems as good a place as any to start. An upgraded version of TOS would, of course, be incorporated. Again, Atari has designed

WHY TYPE 20 LETTERS WHEN ONE'S ENOUGH?

Unless you happen to be a wizard on the keyboard, and can happily trot out 80 words per minute without even so much as a surreptitious glance sideways at your keyboard, then you'll know the problems associated with creating long documents.

Abbreviator ST is a new American program which addresses itself to these problems by enabling the user to create a catalogue of abbreviations.

Thus, as you type in your document you simply replace commonly used words and phrases with an abbreviation and then

the program consults its master lists and set about filling in the gaps.

The program runs as a desk accessory, which means that it can be used in all manner of word processors or DTP packages. You don't have to create separate lists for each program.

Abbreviator ST is priced at \$19.95, though expect to pay about another \$10 for shipping costs. It is available at the moment from Kyle Cordes, 3815 Greengrass Drive, Florissant, MO 63033, USA
☎ 0101 314 921 0614.

an elegant version of TOS for the Mega STE and it's likely that it would incorporate this.

The memory requirements of machines keep rising. In the early 80s, 16K was viewed as being large RAM space. Nowadays, you'll find yourself running out of memory with 1Mb of RAM. So a new ST is bound to feature at least 2Mb of RAM, which can be upgraded easily using simple to install SIMM cards.

The Mega STE features AppleTalk capabilities, as well as space for VME cards, so the new machine is likely to incorporate these features.

One of the most obvious upgrade paths would be a decent sound chip. Alright, so the STE has that DMA chip, but it still has to rely on the increasingly weedy-sounding internal chip warbler. It would seem obvious then that Atari would place a natty new sound chip inside the machine, perhaps one that it has developed for the new consoles.

The STyle and Book both feature RAM card capabilities. These credit card size wafers of technology enable the user to store up to 4Mb of data on board; these can then be transferred to other machines.

So it seems obvious for Atari to include RAM card space. This would enable the new machine to act as a sort of base unit for either Book or STyle, enabling transfer in and out.

Anyway, these are my predictions. I refuse to be drawn on whether or not I have been given some inside information on these matters.

VECTOR FONTS PART ONE

The quality of ST document processing software goes from strength to strength. Therefore it's nice to see support software emerging for these which enables the user to get that little bit more out of them.

ScotSoft International, formerly Gunning PDL, has acquired the distribution rights to just such a range of programs. Users of *Signum*, *Signum II*, *Script*, *Write On* and *That's Write* now have access to some 100 vector fonts.

Each font costs £5 and comes on a double sided disk with a printer driver. Fonts on offer include Broadway, Bubble, Computer, Digital, Cooper and Futura. Write to ScotSoft International, Dept. STPD, 47 Auchingane, The Tryst, Edinburgh, EH10 7HX.

VECTOR FONTS PART TWO

System Solutions, purveyor of high quality ST software and hardware, has just acquired the distribution rights to *Genus*, the *Calamus* Font Editor, which it is selling for £89.95.

Genus loads all *Calamus* fonts, including the copy-protected ones and *Publishing Partner* fonts. *Pagestream* fonts can be imported and converted to *Calamus* format. In addition to all this *Calamus* CVG files can be imported or exported as well.

Up to two fonts can be held in memory at one time, meaning that these can be mixed and matched, creating your own fonts. Portions of fonts (segments) can be stored in a library and used later to create original fonts.

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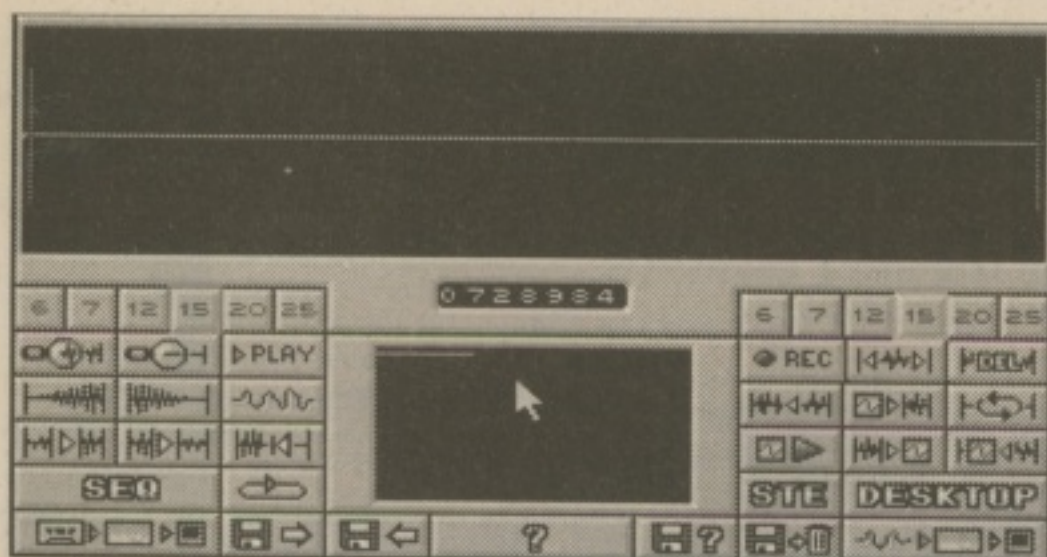
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• £10 off the price of the Daatasound sampler is just one of the reductions Pandaal has made to its range of software and hardware this summer.

Other features include: automatic kerning, seven default kerning options, left, right and tab offsets, a calculator and a comprehensive array of graphic editing functions.

System Solutions is also distributing Calamus Assistant, the on-line help program. SS claims that this desk accessory help program is so comprehensive that you won't need to look at the manual. It costs £29.95. For either of these programs contact System Solutions at Windsor Business Centre, Vansittart Road, Windsor. Tel: 0753 832212.

SUMMER CHEAPIES

The quiet summer months are usually a good time to pick up reduced price software and hardware. Pandaal Marketing is the latest company to drop its prices for the summer monsoon.

The Daatasound sampler has been reduced from £39.95 to £29.95. It offers 8-bit sampling, sequencing and MIDI controls.

The price of the 360 DPI Daatamouse has been cut by £10 from £39.95 to £29.95.

The Daatascan hand scanner, which includes four scanning resolutions, a real-time display and can save files in IMG, TIFF or Degas file formats, has just been reduced from £189.95 to £149.95.

Pandaal Marketing is at 44 Singer Way, Woburn Road Industrial Estate, Kempston, Bedford, MK42 7AF.

Tel: 0234 855666.

Andy Hutchinson

Andy Hutchinson is the news editor on the UK's biggest selling magazine for the ST, ST Format, out every month.

CPC

- Turn your CPC into a worthy card playing opponent
- Is Hydra another Stun Runner or a Hard Drivin'?
- What exactly can a poke do for you? We reveal all

MORE FROM GOLDMARK

As well as all the Goldmark goodies I told you about last week, the company has yet more products in the pipeline.

Two of these are card games. Blackjack (6128 only) is for one to three players, and lets you configure the program for British rules, or any

standard rules, for that matter. For those who don't know, Blackjack is a bit like Pontoon with knobs on. It will set you back £14.95.

Following shortly afterwards at the same price will be Cribbage. Again, this only works on 6128s. Included with the

Continued on next page ➤

WHAT IS A POKE AND HOW DO YOU USE ONE?

It occurs to me that although most of you know how to use the game pokes I put in this column now and again, the rest of you probably wonder what it's all about.

Well, pokes 'interfere' with the game code in such a way as to give you extra lives, energy, weapons - it really depends on the game. Pokes are written by experienced programmers who have been able to 'get inside' each game to make these little alterations.

You don't really need to know how pokes work, but you do need to know how to use them. So here goes...

1) Make sure the routine is written for your

format - disk or tape. They will not generally work with both.

2) Type it in to the computer, making sure there are no errors.

3) Save the program to tape or disk (not the game tape or disk!) so that it can be used again.

4) Put in the game tape or disk and type ITAPE or IDISC.

5) Type RUN to run the routine (not RUN "" (CTRL+ENTER) as you normally would)

You should now find that the game will load normally, or you will be given instructions on what needs to be done.

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WATCH THIS SPACE FOR DETAILS!!!

package you get a, "comprehensive booklet", as with the other program, explaining all the rules and regional variations of the game. This time it's you versus the computer.

Also new is a label printer with graphics! This £12 program lets you print out your own address labels, or labels for your home-made wine bottles or jam jars and so on. You can import graphics from any of Goldmark's Graphics Galore disks, although 56 pieces of clip-art are included with the printer anyway.

Z80 SIMULATOR

Z80 Simulator is one of the new Goldmark utilities I mentioned in last week's column. I've had time to investigate it a bit more thoroughly now, and I've come to the conclusion it's a really excellent little program.

Simulator does exactly what it says it does - it tests all your Z80 code without actually executing any of the instructions. The contents of the registers, disassembled instructions and other valuable information are displayed continuously.

Z80 Simulator acts as a very powerful machine code monitor. Whereas other monitors use up a part of the machine's memory, however, Simulator doesn't. It leaves you with the whole of one 64K memory bank free, so there are no worries about bits of code overwriting one another.

It's worth stressing that this program really is for experienced machine code dabblers only. Although it

offers a comprehensive help screen on start-up, you do really need to know what you're doing.

Z80 Simulator costs £19.95 (£15 introductory offer price!) and works, naturally enough, on 128K machines only. It's not for the inexperienced, but if you're into machine code and debugging, it's a very powerful and very useful little utility indeed.

Get in touch with Goldmark at: 51 Comet Road, Hatfield, Hertfordshire AL10 0SY.

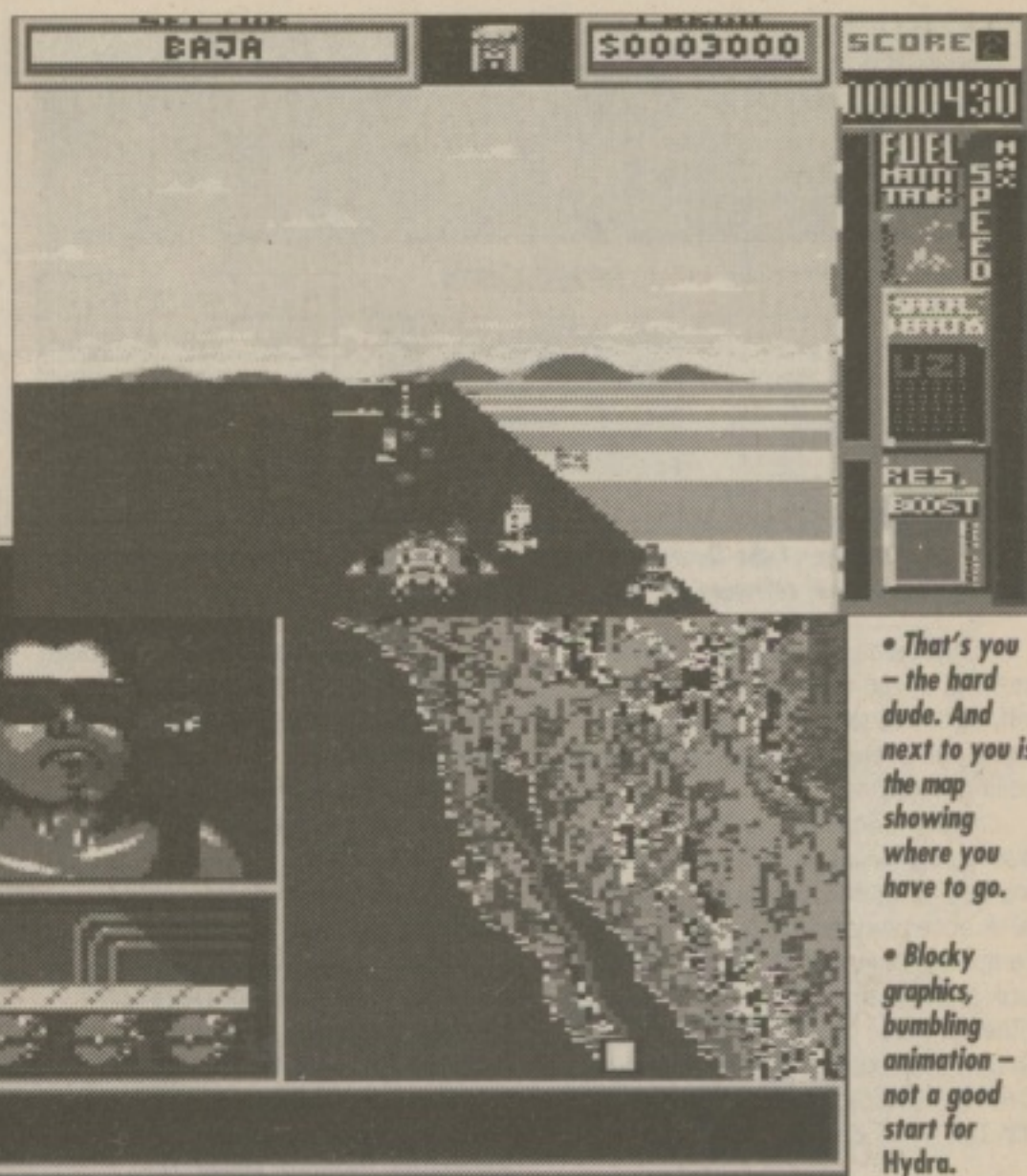
Tel: 0707 271529.

HYDRA

Domark's association with coin-op manufacturer Tengen has produced some pretty decent Amstrad conversions, like the excellent *Hard Drivin'*. It has also produced some pretty rough ones - *Stun Runner*, for example. Unfortunately, *Hydra* falls into the latter category...

The plot is pretty standard fare. You're some kind of ultra-tough, radical mercenary-type dude who pilots a fast jet-boat down enemy-infested rivers carrying valuable cargoes for money.

Not only do you have to stay awake... er, sorry, I mean stay alive, you have to pick up copious quantities of fuel. Not a very environmentally-friendly boat, obviously...



• That's you - the hard dude. And next to you is the map showing where you have to go.

• Blocky graphics, bumbling animation - not a good start for Hydra.

Mind you, this thirst for fuel could be the result of the boat's ability to fly for short periods using the 'boost' control. In this respect, *Hydra* is similar to Titus's *Fire and Forget*; crudely

executed and lacking in variety. The graphics are blocky, the animation stiff and the gameplay very thin. The original arcade game was no great shakes, and it's been downhill all the way from there.

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WELL DONE!

Geo Graham from Sunderland has nothing but praise for two companies in the CPC field:

"I'm a hardware man at heart so I became interested in ROM boards and now in EPROM blowing. I mention this because of the excellent service I've received from Microgenics of Rotherham. It had actually stopped making the equipment which I required, but set up especially again on my request.

"While playing with ROM boards, I had of course (long ago) purchased the fabulous UTOPIA from Arnor. In one of my thoughtless moments, I knackered it. No longer was I in UTOPIA (groan). On phoning Arnor with the intention of ordering a replacement, I mentioned I had one but it was kaput.

"The gentleman on the end of the line said, 'send it in and we will check it', which I did. And two days later a brand new UTOPIA popped through my letterbox absolutely free.

"Top marks, Microgenics, and top marks, Arnor. May success be with you!"

Good news indeed, Geo. It's nice to hear people being complimentary about the service offered by companies for a change. It's a sad fact of human nature that most people only pipe up when they have a beef.

Rod Lawton

Rod Lawton is editor of Amstrad Action, Britain's best CPC magazine.

C64

- Formula 1 sim that needs more than just racing skills
- Greatest C64 shoot-'em-up going for a song
- Pokes for all the latest software on the C64

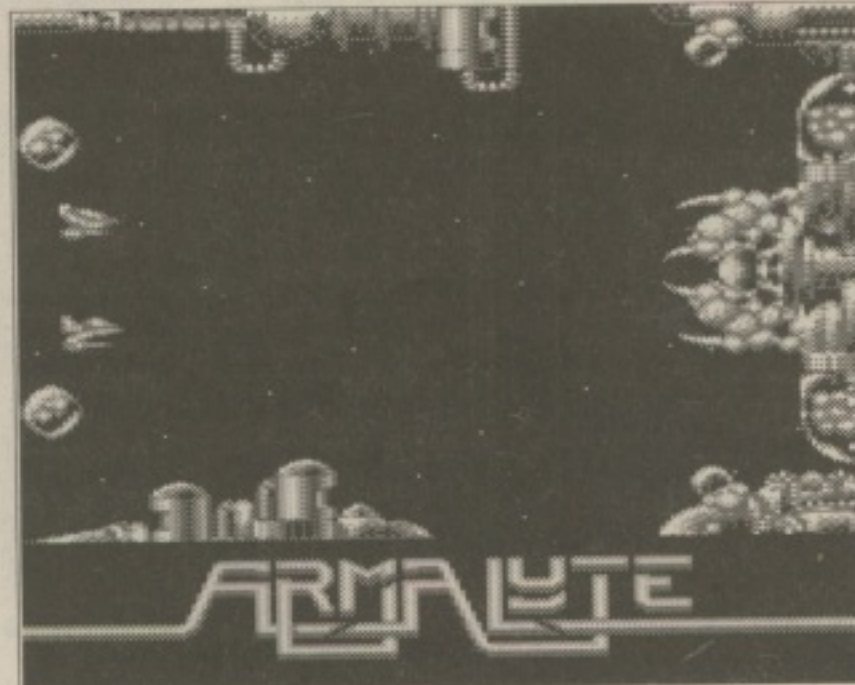
IT'S A STEAL

Three years ago Armalyte took the C64 world by storm, and now the game is on budget for a mere pittance (but who's complaining?).

The plot follows on from its predecessor, Delta, at the end of which the H'siffians were found guilty of gross

piracy in Delta space. In the period between when the two games are set a patrol wandered through the region, and found a deserted H'siffian outpost. For some reason, this is where they decided to form Armalyte industries.

Things were going fine up until recently; scientists sent a transmission



• Who says sequels are always inferior? Armalyte, the follow-up to Delta, can stake its claim to be the best game for the C64, with graphics and music to match. Now the game is available for peanuts.

reporting a potential breakthrough, but then all contact was lost. It is rumoured that the H'siffians have made similar progress, and have reclaimed the outpost as their own. Armalyte industries has no choice other than to recruit mercenaries to wipe the H'siffians from the area.

That is where you come in; up to two players can take part in the mission, although in single player mode a remote drone accompanies the ship. The craft has no additional weaponry when it arrives, but all manner of enhancements can be obtained by shooting munitions crystals which frequently appear.

The game is arranged eight different levels, which scroll horizontally. There is a plethora of alien craft, with a liberal sprinkling of huge motherships, snakes, etc.

Collecting a munitions pod untouched will render the craft invincible for roughly five seconds. When shot, it cycles through a number of enhancements; extra forward firepower, rear firing, sideways firepower, trident (which enhances forward firing), converge (which takes rear bullets and puts them through the front), batteries and generators.

The last two are for use with your superweapon; the batteries hold extra charge for repeated use and generators aid the recharging of batteries.

The superweapon comes in three forms: a piercing laser beam, which can pass through absolutely anything, but uses tons of energy; a barrage of laser

Continued on next page ➤

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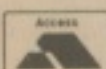
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beams, guaranteed to eradicate the largest of attack waves; and a high-availability laser beam useful for general everyday alien bashing (and it uses the least energy).

In one player mode a remote drone is at hand. This fires in unison with the main ship, and also spits out its own superweapon. It follows the ship around, but its trajectory can be fixed by a hefty prod on the space bar.

Armalyte is undoubtedly the best shoot-'em-up for the C64, as well as

being my favourite game of all time. The gameplay has not aged at all since its release in late 1988. Indeed, it remains fresh, challenging and addictive. Admittedly, some will find the attack waves a tad repetitive, but every game is surprisingly refreshing.

The main asset is the graphics; possibly the best alien sprites ever seen in a horizontal shoot-'em-up, along with some stunningly detailed backdrops (many inspired by Geiger himself). The motherships also deserve some credit,

as they are large, well defined and an awesome adversary!

Sound is superb, with some effective FX and beautiful burbly music from Martin Walker. If you were stupid enough to miss this game before, run all the way to your local software shop with £4 in your hand and demand your copy.

POKES GALORE

Here are some welcome POKES for the lovable pachyderm platform game, CJ's Elephant Antics:

POKE 18429,181 Infinite lives (Player one)
POKE 19871,189 Infinite lives (Player two)
SYS 6144 Restart game

For all you Creatures fans out there, here is an Action Replay POKE to make life considerably easier;

POKE 15596,60 Disables collision detection
POKE 15596,173 Enables collision detection

It's worth noting that you should freeze the program during the game and not on the title screen, as Apex has employed some rather natty protection!

For the swashbucklers among you, some help with Domark's Skull and Crossbones:

POKE 28479,165 Infinite energy
SYS 16624 Restart the game

GOOD NEWS

Well, it seems that the software deficit is finally coming to an end. Advertising revenue is picking up, and new software is beginning to trickle into the shops and soon the trickle should be a flood.

There is a multitude of licenses to look out for, such as Rod-Land, Alien Storm, and Toki, plus some stunningly original software such as Winter Camp, Turbocharge, and Exile.

Late July/August looks set to be a fun time!

Andy Roberts

FORMULA 1 RACING GAME IS A REALLY GOOD IDEA

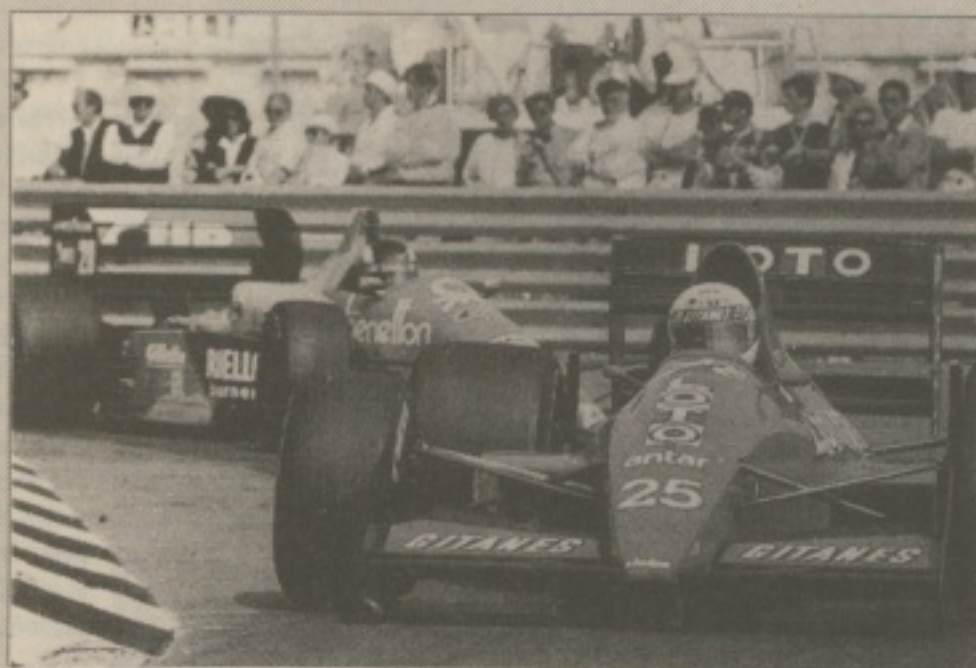
After the abysmal Saracen Paint, Idea can hope to claw back some respect with Formula 1 Grand Prix.

The game has two main elements, namely the arcade racing sections and the technical side of Formula 1 racing. The arcade section is reminiscent of Rally Speedway (oooh, ancient!), and indeed LED Storm, in that it takes place on a vertically scrolling roadway.

The graphics are looking particularly good, with some nicely defined backdrops and some neat hi-res overlays on the car sprites. The intermediate/technical screens are very well laid out, but let's hope that there is some good documentation to back it up.

There are nine different tracks to attempt, along with 20 other drivers against which to pit your wits. As if that wasn't enough, certain copies of the game include a free badge!

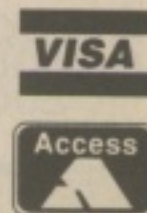
If other racing games (such as Revs) don't appealed to you, Formula 1 Grand Prix Circuits could be worth checking out.



• Formula 1 Grand Prix Circuits is a racing game with a difference: as well as the racing sequences you also have to make some far reaching technical decisions.

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SPECTRUM

- Battle Command shows there's life in the Speccy
- The best adventures of the 80s in one package
- The deep, dark mysteries of SCREEN\$ explained

COMMAND PERFORMANCE

If you're looking for the kind of complex mega game 16-bit owners are always raving about and that come in lavish, forest depleting packaging you could do a lot worse than seeking out Battle Command from Ocean.

This is the sequel to Carrier

Command and plays like an updated version of the old arcade stalwart, Battle Zone (remember that?). You're in command of a tank and look out of the cockpit into a nicely depicted solid 3-D landscape populated with enemy tanks, helicopters and even trains. These can all be blasted with a pleasing variety of

weapons as you strive to complete any one of ten separate missions.

Everything moves around at great speed, again proving the Speccy's ability to handle this kind of thing usually thought of as a 16-bit preserve. The different missions means there's lots to do and see for the £10.99 asking price and if battle sims are your thing this is well worth splashing out for.

DIVE IN TO DEEP WATERS

The ever prolific Zenobi Software is at it again. It has just released a huge, pulsating Speccy adventure compilation that's sure to strengthen its claims for world domination.

Deep Waters is the name of a 12 game collection of titles from the acclaimed River Software. Throughout

the 80s the company put out lots of dependable, good quality Speccy adventures that troll bashing types went a bundle on. Now its back catalogue is available in two volumes from Zenobi priced at £4.99 each.

Volume One contains six excellent adventures:

- *The Hammer of Grimmold*, a fantasy quest for a magical hammer.
- *Realm of Darkness*, where you have to recover treasure stolen from vaults of the king's castle.
- *Matchmaker*, an original-sounding game in which you have to make sure the Prince and Princess get to the church in time.
- *The Mutant*, a quest for a monster.
- *Jack and the Beanstalk*, no explanation needed.
- *The Enchanted Cottage*, your chance to become a paid up, professional sorcerer; all you need to do is escape from the cottage of the title and uncover the mystery of the Green Door.

If those six aren't enough to keep you occupied to around 2010 or thereabouts there's another half dozen to struggle through on volume two. This is comprises:

- *Davy Jones' Locker*, which puts you at the mercy of the elements and subjects you to some of the worst sea faring puns ever made.
- *The Jade Necklace*, a private dick style game.
- *The Lifeboat*, another lost at sea type adventure
- *The Cup*, which requires you to solve

Continued on next page ➤

CHOCKS AWAY, GINGER! WHAT A SIMPLY SPLENDID BIGGLES HACK

This week's hack is for the old but worthy(ish) Biggles. It's quite hard to get working so pay attention and follow these instructions:



• Become a super flying ace just like Biggles here with the help of our high flying hack.

- 1) Type in the program below
- 2) Run the program, which should then return with the 9 STOP statement message.
- 3) Now delete the program lines that put the coded hack into memory, so delete lines 5-45.
- 4) Now type RUN and start the Biggles tape from the beginning.

And there you have it. Respect is most definitely due to Jazz Oliver from Brighton who was clever enough to write the hack and kind enough to send it in. Thanks!

5 CLEAR 32768

7 FOR n=65289 TO 65311 :

```

READ A: POKE n,a: NEXT n
10 DATA 0,017,19,91,1,10,0,
    237,176,195,0,91,175
20 DATA 50,178,207
30 DATA 50,134,216
35 DATA 195,193,93
38 STOP
40 REM Run and delete lines 5
    - 45
50 REM From deletion RUN
    again
60 CLEAR 24013 : LOAD "" CODE
    : POKE 65286,33: POKE
    65287,22: POKE 65288,255 :
    PRINT USR 65248
  
```

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a perplexing mystery too complicated to go into details about here

- The Challenge, a tribal adventure with you trying to become chief.
- The Witch Hunt, which is fairly self explanatory really.

All River's games are neatly constructed, well programmed adventures with zillions of well thought out puzzles to solve.

At £4.99 each these two volumes of Deep Waters represent excellent value for money and should bring a contented glow to the countenance of any Speccy adventure fan.

Get hold of them (and loads of other high quality adventures) from Zenobi Software, 26 Spotland Tops, Cutgate, Rochdale, Lancashire.

TOMMASSO TECH TIP

Good old Adam Tomasso of Carrbridge has sent in another one of those tech tips he's so adept at discovering. This time he's got something to tell us about the SCREEN\$ function:

"Here is a tip you might not know about the SCREEN\$ function. For example you could type:

```
PRINT AT 11,16; "ADAM"
```

and then:

```
PRINT AT 0,0;SCREEN$(11,16)
```

"This would print my name on the screen at line 11, column 16 and then read the position of it and reprint a copy at line 0, column 1.

"That is the normal use. But the way most people don't know is, for example, to bash in:

```
PRINT AT 11,16; "ADAM"
```

and then input the command:

```
SCREEN$(11,16) = "ADAM"
```

then print "Yes". Try it."

Will do Adam. Thanks very much for sending it in.

Have you got any Speccy tech tips? Scrawl them down on a bit of paper and send them to me, Robin Alway, at the Spectrum Column, New Computer Express, 30 Monmouth Street, Bath BA1 2BW.

Also welcome at the same address are game hints and pokes, comments, criticisms, review software, fanzines or anything else remotely Speccy related. Send 'em all in.

SPECCY SERVICE

Got a sick Speccy? Then you might be interested in getting hold of a service manual for the entire Sinclair range which includes all sorts of tech info and circuit diagrams.

You can obtain these impressive sounding manuals that unveil the arcane mystery of the Speccy's insides from Combined Precision Components Ltd, 194-200 North Road, Preston, Lancashire PR11 1YP. Thanks again to Adam Tomasso for supplying this vital snippet of info.

Robin Alway

PC

- A strange alliance: Apple and IBM swap programs
- (Almost) all you'll ever need to know about DOS 5
- Two official biographies of Liesure Suit Larry

IBM AND APPLE IN BED

Men in black suits and dark sun-glasses from IBM and Apple met in Armonk, New York recently. The aim of the meeting, believe it or not, was to sort out a possible agreement through which these long-time competitors would share portions of their core technologies. No, seriously.

Each company is interested in getting its technology to run on the other's platform. Apple is offering IBM Publish and Subscribe, QuickTime, AppleTalk and an unreleased object-oriented operating system that is part of a project code-named Pink.

For its part, IBM is offering portions of OS/2, such as Named Pipes, its RISC Powerchip and its entire suite of networking protocols.

As they say, wonders never cease.

WINDOWS ON SPEED

Alpha test versions of Windows 3.1 are reported to contain a new caching utility to make DOS applications run faster by bypassing DOS and the PC's BIOS chip. Excellent news, indeed.

(However, let me temper that with caution. Some independent software

companies think that bypassing those interfaces is reckless and could damage users' hard disks.)

Beta copies that developers should have received by the time you read this will contain the new utility - FastDisk - which works in 386 Enhanced mode to speed virtual memory paging to and from

the hard disk. FastDisk communicates directly with the PC's hard disk controller so that all disk activity is handled in protected mode.

NORTON'S DESKTOP

Symantec has announced Norton Desktop for Windows, a Windows 3.0 package that provides file management and data protection utilities. The package includes a collection of utilities that replace Windows' File Manager and Program Manager capabilities for faster and more streamlined file management. More news next week.



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It is intended to enable DOS applications under Windows to run in the background and to be dynamically spooled to and from the disk in 4K pages in 386 Enhanced mode. More news when it happens.

DOS 5: THE Q&A SESSION

It's another new series! DOS 5 is here and, I'll bet, it'll provoke one or three questions. So if you have a problem with DOS 5 write to me and I'll do my best to sort you out. For now, here are the top ten questions asked by the concerned, worried and plain frantic.

Q How much memory does it free?

A Basically, around 621K

Q Will it run on my machine?

A Yes (if not ring Microsoft).

Q How much hard-disk space do I need?

A 3.1Mb, although it's possible to get by with 600K.

Q How much memory do I need?

A 512K - to run the setup program.

Q Will it install on DR-DOS?

A It should do.

Q Why can't I boot off the Setup disk?

A Because DOS 5 is an upgrade running on top of the older DOS, not as a separate entity.

Q What if I have a 8086 or my 386 has a memory manager? Why should I bother buying DOS 5?

A DOS 5 is safer, easier to use, has on-line help, includes task swapping, plus undelete and unformat options. Do yourself a favour.

Q Should I use the new version of EMM386 with Win3?

A Yes, this version supersedes the older Win3 version.

Q Will my partitioned hard disk (created with Ontack Disk Manager) work under DOS 5?

A Yep, most third party disk managers are compatible.

Q Will my network run under DOS 5?

A Should do. Quite a few were tested and work. Examples include MS Net, LAN Manager, PC Lan, Novell Netware, Sitka TOPS, etc, etc.

BOOK OF THE WEEK

Hang on it's... it's yet another new series! How does he do it? Answers on a postcard, please.

Yes, folks, this week sees the first in my book of the week series that will cross the seven seas of computing covering utilities, games, packages, languages - you name it, in fact.

First on the list is a bumper double bill in recognition of the new VGA version of that well known animated graphic adventure game, *Leisure Suit Larry 1* and the new *Larry 5* to appear 'soon'.

Published by Compute! and Abacus these worthy tomes are *The Official Book of Leisure Suit Larry* and *The Larry Story* respectively.

The former, written by Ralph Roberts, has the worthy help of the Larry inventor, Al Lowe, to guide him through the mire.

It is a more general book than Abacus's example giving you the story behind and the making of Larry, a resumé of Sierra (the publisher of the game) an absolutely hilarious interview between Al Lowe and Leisure Suit Larry himself.

Different computer versions are discussed then general hints are given for all of the three games. Finally, the answers to the quizzes at the beginning of the games are given.

The Abacus book also gives these quiz answers but in a more presentable form. Although a little smaller, it is a more 'quality' production (better paper, clearer design) but concentrates more upon the hints and tips and so misses some of the more interesting sidelines offered by the Compute! book.

If you just want a good hint book then the Abacus volume (156 pages at

£13.95) has the edge. For a more appreciative Larry experience, full of humour and insight catch the Compute! book (£11.95 for 228 pages).

Both books are available in the UK via bookshops, computer stores or from Computer Manuals.

Contact Computer Manuals on 021-706 6000.

Paul Rigby



• Leisure Suit Larry goes literary: The star of umpteenth games now has not one but two books chronicling his rise to fame.

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MACINTOSH

- Hewlett Packard not guilty of fraud, suggests judge
- Are Macshops the marketing push the Mac needs?
- Quark Express 3 to take full advantage of System 7

MACSHOPS

Rumours are firming up that Apple will start selling the low-end Macs through some form of high-street outlet well before next Christmas.

There are some reports that a trial shop is already in existence, and certainly visitors to Apple's Stockley Park headquarters over the last six months or so have seen a prototype 'Macshop' - a small booth which could be part of a larger retailing operation.

The rumours have been strengthened by speculation that Apple is not creating any new AppleCentres. Suggested retailers are as diverse as Dixons, Comet or W H Smith's.

Whatever, Apple needs to get its act together before the autumn, or it will miss out on what could, if handled right, be a terrific boost to Macintosh sales. The current situation is ridiculous; in many cities, the only place you can officially buy a Mac is at an AppleCentre, which doesn't open on Saturdays.

This means that all the little kiddies who want to persuade Dad to buy them a Mac instead of an Amiga can't even take him to see the kit.

Surely, given that the Mac is the easiest computer to use, it wouldn't be too hard to train sales staff in a department store to sell the damned thing, surely?

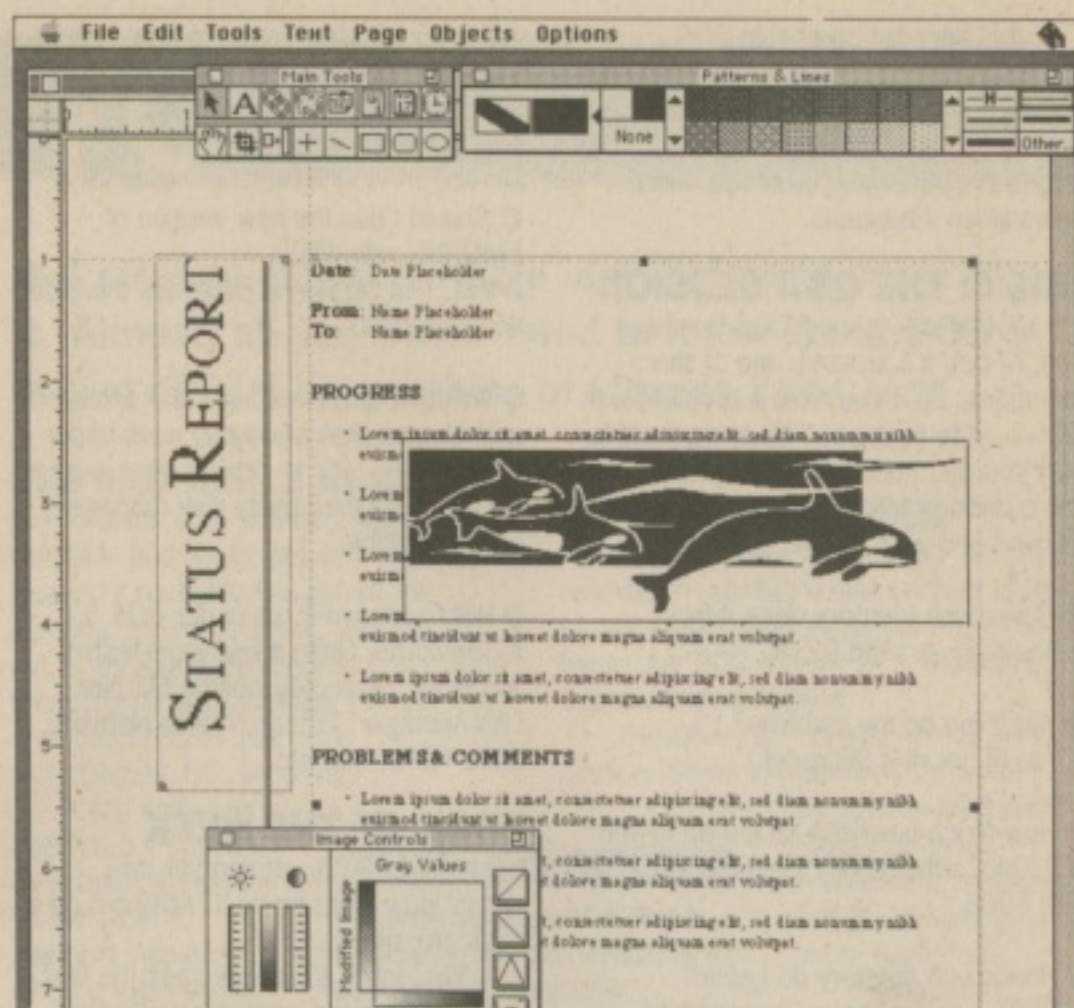
(On the other hand, having just spent 10 minutes in Smith's trying to buy some batteries, perhaps the idea needs some refinement...)

FRAUD CLAIM REJECTED

The judge who is presiding over the hearing between Apple and Microsoft and Hewlett-Packard (over the 'look and feel' of the Mac interface, remember? If not, see Express issue 135 page 6) is said to have announced that he is, "inclined not to allow Apple to accuse Microsoft of fraud".

This relates to a claim which Apple lodged in May this year that Microsoft was guilty of using fraud and coercion in obtaining the licensing agreement in the first place. The judge has also been quoted as saying that it is, "pretty outlandish that Apple discovered this fraud at this late date".

This is not to say that the judge has actually thrown the claim out - even



• Personal Press: Aldus' attempt to capture the low-end Macintosh DTP market is similar to PageMaker in many respects. Could it be the answer to your needs? Find out in a couple of weeks' time when we'll be bringing you a full review.

though it's taken Apple three years from the original case being lodged to make these claims about fraud. But it looks as though Apple's on a hiding to nothing with that particular avenue of complaint.

The judge has put off a decision on Apple's attempts to include Windows 3.0 and H-P's NewWave 3 in the case.

SYSTEM 7 NEWS

There is a debate raging at the moment about whether text is slower to scroll when the scrollbars are displayed in the new, super, 3-dimensional effect mode of System 7.

Although many people have provided figures which prove that this

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cannot possibly be the case, as a subjective observer it certainly appears to be so to me – text seems to take almost twice as long to scroll in some cases. Have any of you Mac users out there come to the same conclusions? If so, or if you can conclusively prove that I'm wrong, let me know.

The first incompatibilities between System 7 and major software packages are beginning to come to light. Quark XPress 3.0, one of the two top desktop publishing packages on the Macintosh, isn't exactly happy with Apple's new operating system.

Although it doesn't actually crash, users of the program under System 7 have reported some anomalies – such as the fact that a PICT saved to the clipboard and then pasted into an XPress picture box will not actually print; at least, not with any regularity.

Beta versions of XPress 3.1 are now in circulation, but the actual product will not ship until the third or fourth quarter of this year. XPress 3.1 will, according to Quark, take full advantage of System 7, offering features such as Publish and Subscribe as well as curing any incompatibility bugs. There should be some other fabby features too, but Quark isn't saying any more at the moment. Watch this space for details...

Also watch this space in the next couple of weeks for a review of *Personal Press*, a low-cost (£199) DTP package from Quark's great rivals, Aldus (creators of *PageMaker*). First impressions are that it is a good package, although with a few limitations.

If you're after a DTP package for your Mac, don't buy one until you've read our in-depth review...

☎ Computers Unlimited, the UK distributor for XPress, can be contacted on 081-200 8282.

☎ Aldus (*PageMaker* and *Personal Press*) is on 031-220 4747.

PRODUCT NEWS

Computers Unlimited has taken over exclusive UK distribution of MainStay products. These include *MacSchedule*, which apparently, "automates the design and creation of Gant-type schedule charts", and the *Classics* package, which includes *Capture*, the best screen-grabbing package available, and

AntiToxin, an anti-virus program.

MainStay products can be purchased through The Software Club, a division of Computers Unlimited.

☎ Telephone 081-205 4548.

Retrospect, the award-winning backup and archiving program, has been updated by manufacturer Dantz Development to be fully System 7-compatible. Version 1.3 apparently increases the maximum archive size to 1 Terabyte (that's 1,000 Gigabytes, although why anyone would want an archive that size is completely beyond me), and provides for full automatic, unattended backup.

Owners of version 1.2 are eligible for a free upgrade; version 1.3 costs

£149, and will be available from July.

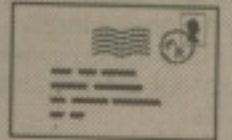
☎ Give Principal Distribution a ring on 081-677 7631 for more details.

MacSel has signed an agreement to become the exclusive UK distributor of Power Up! Software's new Macintosh products. Already well-known in the DOS marketplace, Power Up!s Macintosh range includes *Fast Forms*, a package which allows the user to easily design and complete forms of all kinds, and *Letter Writer Plus* which is, according to its new distributor, "a powerful and easy-to-use letter writing and mail merge desk accessory".

☎ More details from MacSel on 081-568 8866.

Ian Wrigley

POSTCARD FROM AMERICA



After living with System 7 for a couple of months, I've cru my installation methodology (or fixed it in concrete) for users making the transition. If you'll follow my sane and simple plan, you'll be in seven heaven. If not, you'll wind up in a bottomless bit!

RULE ONE: Pretend that you've never seen a Macintosh before. This is more than just a mental exercise, but an important ritual. Use the latest versions of hard disk utility software, and reformat your drive. Lay down a fresh system on the disk, even though the Installer program could update your old 6.0x system. You're a new user in a brave new Mac-world.

RULE TWO: Run a "pure" Apple system for at least a week. The depth of the interface should be used and appreciated. It takes time to really get the new features integrated into the unconscious.

Finder enhancing software, popular with former power users, should be avoided. I've only added a screen saver (*After Dark*) and *Super Boomerang* (in the *Now Utilities*) so far, and I was a real

CDEV/Init junkie in previous systems.

Aliases, especially, can be overlooked in a rush to recreate a previous desktop environment.

RULE THREE: Turn off esoteric new features. Don't bother with virtual memory, unless you know what you're doing, or have a specific need. The same applies to 32-bit Addressing and File Sharing. Users suddenly find their system has swollen by many Mebibytes, without their knowledge. They scream that System 7 is a memory hog, when they're accidentally "using" a feature. It does want as much memory as you can throw at it, but piggish? Really!

The Calculate Folder Sizes option in the Views control panel device is a notorious for slowing machines down. I don't know if Finder operations are truly slowed, but they certainly appear to be to the subjective eye. Certainly the hard disk has to run around getting the information.

David Morgenstern

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All STE Ram Kits come with instructions and DO NOT require soldering in most machines.

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Due to high demand sales, we have now run very low on stocks of the ST software packs below. Therefore, please ring for availability before ordering. For contents of the ST software packs - see the listing of ST computer ranges on the opposite page or phone us for details.

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Citizen 120D + (9-pin)	£139.00
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Citizen Swift 24X (15" 24-pin) *FREE COLOUR KIT*	£399.00

CITIZEN RIBBONS

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(FREE fitting when bought with an A1500)	
52Mb with controller	£349.00
104Mb with controller	£499.00

8833

Colour Monitor

The Philips 8833 MkII is the perfect colour monitor for ST and Amiga owners. With its stereo sound and super quality picture it really shows off the full capabilities of the STE and the Amiga. The Philips 8833 MkII also comes with 12 months on site warranty FREE!

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The Atari Lynx is a superb full colour hand held, games console using plug-in cartridge games. The Lynx can be used with either batteries or a mains power supply unit. All our Lynx machines come with instructions and are available with or without mains power supply unit and comlynx cable.

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ATARI STE TENSTAR. consists of Standard Pack and Asterix, Chess Player 2150, Drivin Force, Live + Let Die, Onslaught, Pipemania, Rick Dangerous, Rock n Roll, Skweek and Trivial Pursuit II.

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512k	1mb	2mb	4mb
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AMIGA A1500 SOFTWARE 104MB consists of A1500 software pack and fitted 104mb auto booting hard disk drive.

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£1075.00	£1270.00	£1350.00	£1475.00
£1130.00	£1325.00	£1405.00	£1530.00

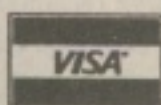
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WHOLE WIRED WORLD



Steve Gold reports on maths coprocessors on the cheap, credit card software for PC users, the launch date for the Super-Famicon, even faster Smartmodems and other exciting developments coming over the international modem lines

MATHS COPROCESSORS FALL TO SENSIBLE PRICES

Intel and Cyrix, two of the computer industry's major chip suppliers, have slashed the prices of their respective maths coprocessor chipsets for PCs.

The reason for the price cuts? According to Intel, the first company to cut its prices, maths coprocessor prices are perceived as being too high compared to continually falling PC prices. Both companies have also admitted that the maths coprocessor chips are a lot cheaper to produce, now that their respective R&D costs have been covered. This perhaps explains the size of the price cuts, which amount to two-thirds in some cases - an Intel 33MHz 80386 coprocessor, for example, drops from \$994 to \$299.

The price cuts are likely to take some time to filter through to UK suppliers but, in the meantime, if you want one, it may pay you to call Intel in the US on 0101-408-765-8080 to check pricing.

ACCESS YOUR CREDIT CHARGES

Most PC users will be aware that you can balance your bank account using suitable software, but did you know that you can plan your credit card payments as well? Good Advice Press is offering its *Banker's Secret Credit Card* software

Notebook PCs are nothing new, but how about a seven pound unit that features a massive 60Mb hard disk? Tandy's 3810HD unit has just been released in the US and is based around a fast (20MHz) 80386SX microprocessor driving 1Mb of RAM. All the usual notebook features are available - high-res backlit LCD screen and serial/parallel ports, as well as some sophisticated power-saving software to spin the maximum amount of useful time from the rechargeable battery pack.

The price of the new notebook? An interesting \$3,299 - about 20 per cent less than the heavier competition with the same specifications. So when can we expect the machine to be released in the UK? Tandy UK's official line is that not all US products are released in the UK. I'd expect this particular machine, however, to be available later in the summer. In the meantime, there's always the US mail order companies.



• Tandy's notebook PC has now been updated. The new Tandy 3810HD weighs in at only seven pounds.

for just \$25. The package allows you to enter how much your credit cards charge for interest and annual fees.

Using this information, along with statement dates etc., the package then tells you which card to use when, and how to save money on interest by making payments from your salary as soon as it reaches your bank account.

You could work all this out for yourself, but the publishers reckon that the package will pay for itself within a few months, so now is a chance to make your PC start paying for itself.

Contact: Good Advice Press, Box 78, Elizaville, NY 12523, United States. Tel: 0101-914-758-1400 Fax: 0101-914-758-1475.

US STUDENTS FINED FOR VIRUS

Three Charleston high school students have been suspended and ordered to pay \$5,000 in restitution after they were found to have inserted two computer virus programs on to their school's computer network. According to school officials, the virus programs caused havoc on the network of 150 PCs, deleting files en-masse. Fortunately for the school - and the students - most of the files had been backed up.

As a result, school officials have concluded that the insertion of the virus programs was an act of stupidity on the part of the students rather than malicious. Clinton Giles, vice principal of Capital High School, told the US press that the students "...were not trying to destroy the system. They took a few liberties that had not been extended and created problems that were beyond their wildest expectations". Greg Bailey, a solicitor for the Kanawha County school board said that the network was shut down for a week during May and a consultant was hired to remove the virus programs. Bailey said that one of the viruses "... was obtained from a book," while the other was received from a computer bulletin board system.

NINTENDO GETS STROPPY

Hot on the heels of taking legal action against the Far Eastern suppliers of pirate games, Nintendo America is getting serious about US distributors of these games. Last week saw the games machine giant take legal action against US importers, distributors and retailers handling the games, claiming copyright and trademark infringements.

In a statement from its Redmond,

Washington, offices, Nintendo said the law suits have been brought against nine defendants and their businesses, alleging unfair competition among many other things. "These actions arise out of the sale of counterfeit multiple Nintendo video game cartridges," the statement said. This could mean hard times ahead for UK suppliers of counterfeit games cartridges, usually priced way below the official prices. Stock up while you can.

HAYES STEPS UP TO 14,400 BPS

After grabbing a fair slice of the high-speed modem market-place with its Ultra Smartmodem 9600, Hayes has speeded ratings yet again with its Smartmodem 14400, a \$1,199 modem that can whiz data at up to 38,400 bits per second (bps) down the phone line. This incredible data throughput is made possible by the use of V.32Bis and V.42Bis modem technology. The V.32Bis modem chipset whirrs along at 14,400 bps, while the V.42Bis data compression software squeezes data over the modem link.

In a statement from its Atlanta headquarters, Hayes claims that the Ultra 144 "delivers unique connectivity to SNA, X.25 and ISDN networks and supports virtually every modem communication application in mainframe, workstation and personal computer environments." Hayes president Dennis Hayes said that the Ultra 144 is "... ideal for customers who want to be 'first' with new technologies and whose applications require additional throughput."

The Ultra 144, available in the US this August, also features Hayes Autosync for synchronous communications, MI/MIC for support of PABX and security systems, and CCITT V.25bis for synchronous autodialing. ■

SUPER-FAMICON— US LAUNCH IN SEPTEMBER

It's official - Nintendo's Super-Famicon home computer system is being readied for launch in the US this coming September. Nintendo reports that mail orders for the machine are already into the high hundreds. The US name for the Super-Famicon is the Super NES. The machine has become a best-seller on the domestic Japanese market since it was released last November, despite the fact that it is incompatible with the original Famicon computer system.

In Japan, Nintendo reports that sales of the \$200 unit have topped the \$2 million mark, a figure it hopes to double by the end of the year, thanks to pent-up demand in the US. So far, Nintendo has sold about 30 million units of the eight-bit version of the Famicon computer system in the US. The machine has almost saturated the market, as



• Nintendo's Super-Famicon will be launched in the US in September.

witnessed by a 29 per cent sales slump during the first quarter of this year.

So when will we see the Super NES on this side of the Atlantic? According to Nintendo Japan, there are no plans to for Europe yet, but sources in Japan suggest that early '92 is a probable launch date in the UK. For now then, it looks like the 'grey market' importers will be the only source of supply of these excellent games machines.



CIRCUIT CITY

We asked you to dig deep for the most outrageous computer tales you could find. David Ward took on dedicated serious industrial machines with his Spectrum and Amiga... and won

David Ward works for electronics giant GEC in a division dedicated to optical technology. This can mean anything from a simple lens to an anti-reflective coating and to a full blown telescope David takes up the story:

Optical coating or, to give it its proper title, optical thin films, is a technique for the improvement of the transmission or reflection of light from glass surfaces. This is achieved by the evaporation of one or more chemical compounds onto the glass within a vacuum chamber. The results are dependent on what compounds are used and their relative thicknesses, usually measured in nanometres. In the early days most coatings consisted of one or two layers, this was quite adequate for simple optical instruments designed for naked eye observations. However, as detectors became available for use in the regions of the electromagnetic spectrum outside the human visual range then new coatings needed to be developed, especially those of a high efficiency and broad bandwidth.

SLIDE RULE TECHNOLOGY

The most important figure for calculations to be made is the optical index. This is the value of how much a glass, or other medium, bends light. Unfortunately red light is bent by a different amount than blue light. Calculations to determine what a particular coating recipe would look like means that the coating effects have to be calculated for a number of wavelengths of light before a graph can be plotted.

My humble Spectrum matched the £4000 Perkin Elmer in performance, and beat it with a colour display too

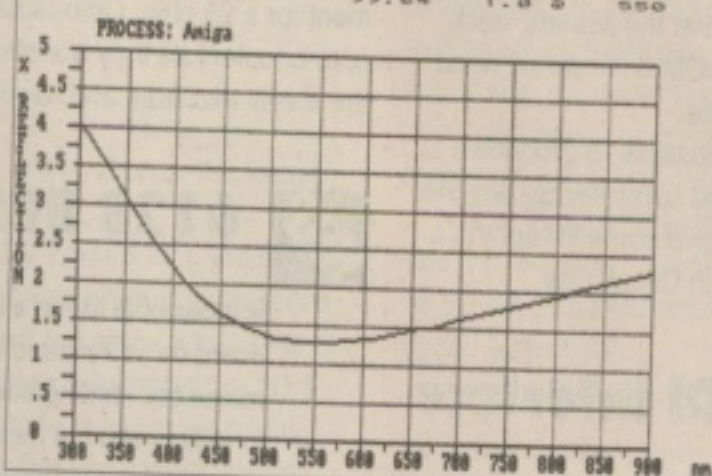
Teams of boffins complete with slide rules were once employed to perform these tasks. It could take several years just to design a multi-layer coating ... until the computer.

CUSTOM COMPUTING

Back in 1978 the company I work for was owned by Rank Organization, better known for Butlins, Bingo and motorway cafés than high technology equipment and sharp-edge research.

With the arrival of a physicist in-house development began. By 1982 a computer was purchased to act as a dedicated equipment controller and it was found to

PROCESS: AMIGA
SUBSTRATE REFRACTIVE INDEX IS 1.5170
INCIDENT MEDIUM INDEX IS 1.0000
ANGLE OF INCIDENCE IS 0
LAYER INDEX THICKNESS QUARTERWAVES
1 1.399 99.64 1/4 @ 550



• The output from the Commodore Amiga (above) is streets ahead of the dedicated machine (right) which costs over ten times more and needs a professional operator.

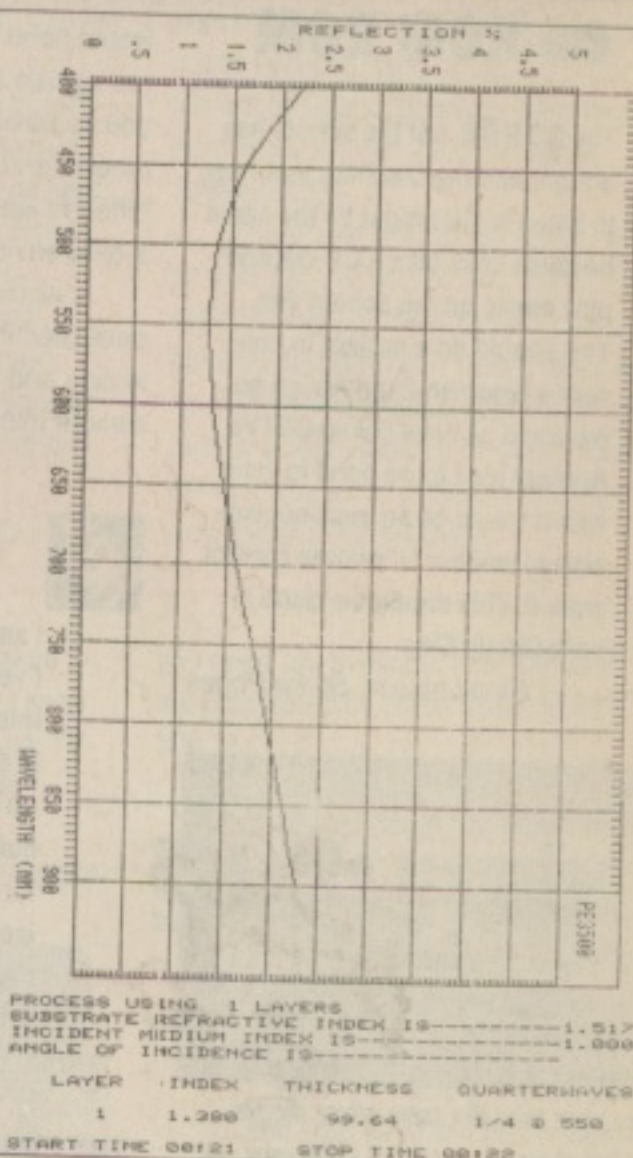
be also suitable for other things, (games!). These were simple text adventures that had been re-written by the manufacturer's boffins from originals played on American University mainframes. It wasn't long before our physicist decided he needed his own thin film design software, and so he set about writing a program for our machine.

Now here is where you might like to know about this super computer. It is a Perkin Elmer 3500, and it cost the company over £4000, including the operating system and Microsoft BASIC, twin 360k 5.25" floppies, 48k of memory dropping to 26k with BASIC loaded, mono hi-res graphics, all running on a Motorola 68000 chip. This is the machine I learnt to program on.

After about a year the thin film design software was up and running. At the same time I was confident enough to purchase my first computer, the good old rubber keyed Sinclair Spectrum. It soon became apparent that my £129 Spectrum was as good a machine as the Perkin Elmer and I didn't hesitate to point this out. Of course I was laughed at.

SWEET REVENGE

One night I decided to get my own back and so armed with a listing of the program I sat down and began to type it in. After much trial and error I got the thing to work. Imagine the look on their faces when the humble Spectrum matched the £4000 Perkin Elmer in performance, and beat it with a colour display too. When the Spectrum program was compiled it was a clear winner. There was no compiler available for the PE, if there had've been I bet it wouldn't have cost £15!



ON OUR OWN

By now the physicist had left and so coating design was left to the production staff. Some of my colleagues had also bought Spectrums, but my boss had to be different, he chose the C64. One of the Spectrum owners was really hot on design work and spent his evenings working with the Spectrum, transferring the data to the PE for the better graphics printout. He too eventually left, and with the work we were doing beginning to dry up, not much design was taking place.

ENTER THE AMIGA

1987 was the year when the 16 bit machines began to appear more affordable and new orders were in the offing. The PE was getting long in the tooth and other departments were getting new equipment so we thought it was about time that we had a replacement. Perkin Elmer were marketing their model 7500 Professional workstation based on the 68000 chip, a mere snip at £10,000, so we persuaded the company to buy an Amiga 500 and a colour printer instead! ■

WANTED URGENTLY!

Have you got a ZX81 that out performs a mainframe? Does your Dragon leave a Sun Workstation standing? Can your calculator out crunch a Cray? Don't just sit there with a smug grin on your face. Let us know. You could get fame, fortune and even dosh. Send your story to David and Goliath, Outrageous Machines, The Attic, 30 Monmouth Street, Bath BA1 2BW

THE MOST COST EFFECTIVE SOLUTION

I can guarantee that my Spectrum is the only computer for under £100 now that has a working version of thin film design. And the competition? Other than the £400

Amiga everything else is serious cashflow.

Commercial programs (£2,000+) require a 386 or higher PC, or Macintosh, complete with co-

processor and minimum 1Mb RAM and 20Mb harddisk. (another £2,000) The Spectrum and the Amiga win hands down for both price and performance.



TECH TIPS

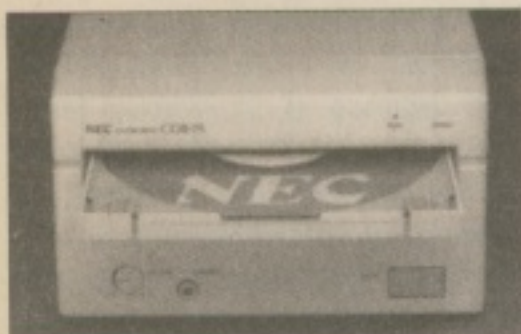
Want to put your CPC in the picture? Uncertain about the CDTV specs? Baffled by batch files? Planning to give your Amiga Tower-Power? Write to Keith Pomfret's Tech Tips

HELP

Do ROM ROM

The CD ROM that the school has bought and the Discman that I use to listen to CDs must be the same because I can take a CD out and play music on the school one. You should do a project to connect a Discman to an Amiga so we could all have cheap CDTV's. Another idea to go hand in hand with it would be an easy conversion to make a TV remote control work it. This should be done in your Circuit City.

Gino Lawson, Stoke Poges



• They may take the same silver digital disks but there's a world of difference between the way that they process the signal

I'M AFRAID that I'll have to pour cold water on both of your ideas. Most CD ROM players are able to play music CDs as it's a fairly simple job to take the digital signal from the disk and turn it into something to listen to.

Any basic CD ROM or CD player can do or can be adapted to do this. When you get into the realms of passing data to a computer you need a dedicated interface that both the TV and the CD ROM drive can recognise.

If you compare the price of a cheap CD player (£80) with the cheapest CD ROM (£300) you may notice a teeny difference in price. The CD ROM player has all the extra bits necessary to talk to the computer. In raising your question you do inadvertently raise another.

Are the extra parts in a CD ROM worth the price differential? In PC and some Macintosh installations an extra interface board is provided for the computer which can justify some of the extra expense but as the size of the CD and multimedia market increases I think we'll see that price differential narrow.

Your idea for an adapted TV remote control wouldn't work because in order to function, the CD or computer

would need to be set up to receive infra red signals and interpret them. Even if you could build the infra red interface to receive and interpret the signals, each different kind of ROM drive would need a different interface.

It would be possible to produce a dedicated infra-red controller for say the Amiga and we'll give some thought to a remote interface in Circuit City

HELP

MIDI interface

I am concerned that every article I've seen about MIDI says that the interfaces must be opto-isolated. Is this necessary? After reading up on MIDI, it looks like I could build an interface for my Amiga for less than a fiver without opto-isolators. Are they a way for the manufacturers to bump up the price?

Rick Kaye, Stevenage, Herts

THE PURPOSE of opto-isolating a MIDI interface is to protect both the computer and the MIDI network. Opto-isolators work by passing the electronic signal using a short light bridge and restoring the signal and level on the other side of the bridge. If anything goes horrendously wrong with anything on the MIDI network and large quantities of volts, amps, current or surges get loose, they stop in their tracks at the opto-isolator.

If you are planning to build some sort of MIDI interface don't risk blowing up hundreds of pounds worth of equipment for a £5 chip. Opto-isolators (or opto-couplers as they are also known) are easily available and necessary.

HELP

6128 BBS

Is it possible to run a bulletin board on an Amstrad 6128? I remember reading about one a long time ago but have lost the mag, read it wrongly or dreamt it.

My system is a 6128 (REAL GREY ONE) External 1 meg drive, CTM 644 monitor, which I have made switchable so the computer will run without it, 256k memory expansion/RAMdisk (switchable), Hayes compatible V21/22/23/22bis modem and often filled coffee cup. If you can help me find the magazine article I will be grateful. If you will show me how to set up the BBS, where to get the software and who to nag when it goes wrong, I will send you my wife (Photo enclosed. She can cook and earn a good living but she hates computers and if I had to make the choice...)

R. Beauchamp, Newcastle upon Tyne

IT IS POSSIBLE, it has been done, there have been several articles and we

can direct you to the experts. The easiest most efficient way to run a BBS on a 6128 is to use a program called ROS (remote operating system) which works under CP/M. There are versions of ROS specially configured for use with the 6128 and if your modem isn't already catered for, it should be possible to get a modem driver welded together by some helpful programmer.

ROS is written in Borland Turbo Pascal and the source code is available from Dave Gorski at Aspects BBS. The system that you've described should run ROS as it is without modification. If you contact Dave at Aspects by logging on and leaving a message, he should be able to provide you with the files and advice that you need. In order to configure the system for your own BBS, you'll need some sort of word processor.

This is because Turbo Pascal is a compiled high level language and the source code takes the form of a text file. If you understand programming in Pascal, you will be able to further tweak ROS to suit your own ideas and installation. If you're not a programmer, at least you'll be able to configure the screens and messages to your own specification.

The only problem that you may have is in compiling the program. The Turbo Pascal compiler that runs on the CPC is a shade rare nowadays. You'll probably need to find someone with a compiler to do the job for you.

HELP

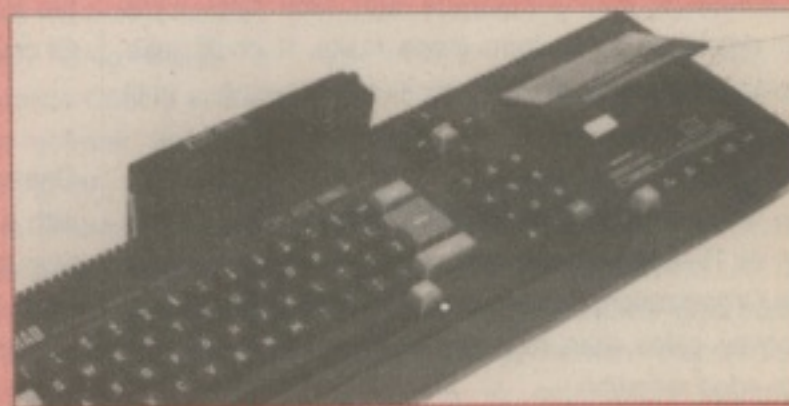
CPC aka Arnold RIP?

After Amstrad cocked a snook at serious CPC owners with the games playing cartridge machine CPC pluses, I wonder whether the CPC, or Arnold to its friends, is being put out to grass. One never hears of exciting CPC developments any more

Enough of the musing, here's my problem. I have the excellent Stop Press DTP program, but the clip art available for it is dire. I understand it's possible to get digitised images into the program, but am not sure how. Can you help?

Dave Stewart, Staffordshire

AMSTRAD MAY very well have given up on the serious development of the CPC but, even as we write, a German firm has unveiled a CPC clone that looks set to breathe new life into Amstrad's first micro. To get digitised images into the program you first need a digitiser. This you can get from



• Getting digitised images into this CPC may not be as difficult as you think with a little help from WACCI.

ROMBO on 0506 414631 or direct from CPC aficionado Steve Williams at WACCI on 081 898 1090.

You can either digitise into the program that comes with the digitiser and import the file as clip art or you can digitise on the fly straight into your page in Stop Press

The image for digitising can come from a video camera, still video camera, video recorder or any composite video source.

Again, Dave Gorski should be able to provide a name. If you are a relative newcomer to programming and compiling, it's probably a good idea to have someone who understands Pascal compile the program for you.

Turbo Pascal is a powerful language but an unforgiving one. It's easy for a compilation to fall over due to a simple syntax error of punctuation. If you're used to de-bugging Pascal, these mistakes will seem to leap out of the screen or print out to be remedied in short order.

If programming isn't your forte, the colon masquerading as a semi-colon will remain cunningly hidden, refusing to reveal itself as the frustration quotient passes the red line. Good luck with your BBS project and don't forget to let *Express* know when you go on line so that you can be included in our BBS list.

file extension .BAT. I understand that the AUTOEXEC.BAT file is the one that the machine polls in order to boot and run but what about the other files? They are ROUTE.BAT, WP.BAT, COMM.BAT, PIL.BAT and FU2.BAT. When I try to run them by typing the filename all fail except FU2.BAT which causes the machine to crash and lock up. The only way to reset the machine after the crash is to turn it off at the switch. What are these files that are sending me batty and are they any use? I've replicated two of them below:

```
CD\ARFV4
route
CD\WP
Protext
CD\
```

Martin Eaves, Wimbledon

HELP CDTV drive

Can a CDTV:

- 1 Run a hard drive
- 2 Connect to the keyboard of a B2000
- 3 Run CDI software
- 4 Run a 3.5 inch floppy
- 5 Load disk software
- 7 Take a KCS power PC board
- 8 Take an ATonce board
- 9 Make me rich and famous
- 10 Get me on the doctor's couch

If it can, my machine is an Amiha B2000 (I have one in each of my houses. (My favourite software is MS Flight Sim (via the bridge board (and my desired machine is a couple of Neo-Geos.)))) Do I get the award for nested parentheses?

Kelvin Hoyle, Wrexham

HERE ARE your answers:

- 1 No
- 2 No
- 3 No
- 4 Yes
- 5 Yes
- 6 There is no number 6
- 7 No
- 8 Perhaps
- 9 But you're already rich and famous. You've two B2000s and you're appearing in the only serious national computer magazine to hit the streets when people want it...Weekly
- 10 When we last checked, Andy editor was sharing the chaise-longue with the good Doctrix but I'm sure that if you're patient (groan) your time will come.

HELP Driven BATty

A PC that was bought at a computer auction had been stripped of software and the 20Mb hard drive only had the files off the provided DOS disk and some strange short text files with the

THE BAT FILES are text files which give the machine a series of instructions to follow in much the same way as the Autoexec file does only instead of starting up the machine, a batch file might start an application like a word processor or spreadsheet. The two batch files that you've copied work in the same way. They change from the root directory to the dedicated directory of the application that you need to run and then start the program. The person that had the PC before you had *Autoroute Plus* route planning software and *Protext* word processor among their applications and although they've wiped the disk, they've left the batch files.

HELP PC Expansion

I have a PC that has no extra room for expansion on the motherboard but I need to add memory. It is a 286 AT clone and someone who knows about these things opened it up, poked around and told me the following. It is a 286 with 1 megabyte of memory. The video and hard drive controllers are part of the motherboard. There are two cards in the expansion slots. They are a multi i/o card with parallel, serial and games ports and a V21/23 modem. The remaining one eight bit and four sixteen bit slots are free. He further added that a simple way to add memory would be on an expansion card where he reckoned that I could add up to 32 megabytes on board.

Can you confirm that this is possible? It will be a bit odd if a machine with a 20Mb hard disk can have 12 Mb more memory than storage. I think that you did a PC build up recently and recommended a company that could supply expansion. Could you repeat the phone number for

HELP Sounding out

Can I connect my Amiga to my Philips stereo MIDI tower system. According to the Philips manual, the two phono plugs on the back are an auxiliary input. I've tried connecting a Discman to them and it works perfectly but I don't want to connect my Amiga without the benefit of your advice. If it is compatible, do I need special leads or will any pair of phono leads do?

Mark Hanson, Cromer

THE OUTPUT OF your Amiga is compatible with the aux input of a stereo system. A standard pair of phono leads are all that you need to connect them and if you haven't got these, any branch of Tandy can supply them.

One thing to remember though is that the nature of the sound produced by an Amiga is different from that produced by a stereo.

The same volume level of com-

those of us that aren't allowed to keep the back issues. (You know the story: "If I have to bin my *TV Times*, that weekly computer thing can go too.")

Gerrard D'Abo, Birmingham



• The PC is one of the few machines that you can open up without killing your warranty, offering an upgrade opportunity to DIY enthusiasts.

THE SIMPLEST WAY to do the upgrade is a slot in memory card as your friend suggests. It may sound a bit backwards way round but it is possible to have a machine with more memory than storage. With the correct software to take advantage of the extra memory a PC's productivity and efficiency can be increased by a large factor. One thing to consider if you're planning to upgrade your 286 is that perhaps a 386sx motherboard may be a useful option too.

The 386 chip has the ability to operate a multi-tasking environment and run as several 'virtual' 8086 processors. If you use your PC for jobs where you move data from application to application you may find that the 386 solution is best in the long term, allowing you to have several applications open at once and cut and paste between them. Check if your software's compatible if you take this route.

All the boards and peripherals that



• A hi-fi tower is the ideal peripheral to enhance the sound output of your Amiga.

puter sound can produce more 'nuisance factor' than say pop or classical music and can carry further much to the annoyance of those around who don't want to hear Blast the Aliens Greatest Hits.

The sound chip of the Amiga with its own internal source and the Amiga's ability to sample means that it can produce some pretty porky bass resonant sounds so you should keep the amplitude and tone controls on your stereo set in a way as to avoid overdriving and 'rattling' the speakers.

you need are available from DFI and are distributed by Silica Shop on 081-309 1111.

HELP File transfer

A friend and I are planning an ST Amiga fanzine for limited circulation at school and amongst friends. My friend is the arty one and I can write and that brings us to the first problem. If I produce text files in *Protext* on the Amiga, how can we get them into *Calamus* on the ST. We've both machines in the same room and I'm hoping that there's some way to get files from one to another without messy soldering

Malcolm Stott, Poole

There are two logical ways to do it. Firstly, you could get comms programs running on both machines and connect them together using a null modem cable. There are PD comms programs available for both machines for a few pence and Tandy will sell you a null modem connector and serial cable for a few pounds. Save your files in the ASCII format and use the comms software to send them down the wire.

Alternatively, there's a program called *Cross Dos* that enables an Amiga to read and write a PC disk. As the ST is also able to read and write a PC disk, it's a simple matter of saving an ASCII file on the Amiga and importing it into *Calamus* on the ST. ■

Write to Keith Pomfret,
Tech Tips, New Computer Express,
30 Monmouth Street, Bath BA1 2BW.

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WINDOW SHOPPING

The windows environment makes programming an easier task, but what languages and systems can you use? Mary Branscombe tells you what's new, how to use it, where to find it and what to read about it ...

Microsoft unveiled the new *Visual BASIC* programming system for Windows at the Software Tools 91 show. What you get is a language that looks like fairly standard *Quick BASIC* offering object oriented facilities. On top of that, *Visual BASIC* is an event oriented programming language and one of the first of its kind.

With *Visual BASIC*, you can program your computer to recognize events that are assigned to a window. So, if you wanted to have a signal sent through the COM port every time you clicked a *Windows* button – say to request some data from a database elsewhere on a network – then you could simply draw the button on the screen, give it an object name. That name enables both *Windows* and you, the programmer, to access it in future. Then you write procedure.

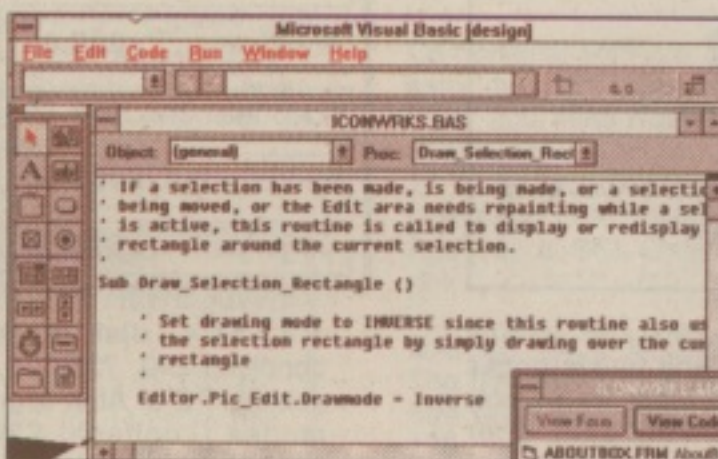
WHAT YOU GET

Microsoft is keen to stress that *Visual BASIC* is not a Fourth Generation language, but it does come as a complete environment.

- The Forms designer is a fairly complex application in itself. This lets you draw all the *Windows* icons and buttons and create text windows or windows that contain bitmaps. It takes about three seconds to draw and name a radio button. In *Microsoft C* that would be at least 30 lines of code. Because this is a *Windows* application itself, you'll also be sticking to the *Windows* interface guidelines.
- The event-driven BASIC compiler – based on *Quick BASIC*.
- Editing and debugging tools.

But can any BASIC program be converted and run under the new system? The answer, in all honesty, is no. Although *Visual BASIC* applications are remarkably easy to set up, there are still fundamental differences in

the way you would approach a program. Because *Visual BASIC* is event driven, whole programs revolve around what happens to, say, the mouse port or the COM1 port rather than using interrupt routines to search for activity in that particular part of the computer's hardware. Because most applications will sit around waiting for the user to move the mouse or hit a key, this is actually a very good way of writing an application.



• You work in Windows with Visual BASIC so it's easy to use

WHAT CAN VISUAL BASIC DO FOR YOU?

- Drawing up your user interface is fast and easy.
- The user interface is as good as if you coded it by hand.
- You're working in *Windows* so it's very easy to move from editing to testing to debugging – you don't even have to quit from *Visual BASIC* to run your application.
- *Visual BASIC* uses threaded p-code that means programs compile quickly.
- You can exchange information with other *Windows* applications using the Dynamic Data Exchange mechanism, so that you can build added functions on to existing applications. ■

WHAT'S NEW

● The official way to program *Windows 3* applications has always been to use the Microsoft Software Development Kit and a language like *Microsoft C 6.0*, which is all very well if you are a C programmer. Microsoft's release of *Visual BASIC* – a language based on their *Quick BASIC* that lets you put together the *Windows* part of an application by dragging icons around – shows that even they realise that not everyone who's interested in *Windows* is a C programmer. Lots of alternatives have been coming through the letterbox this week.

● *WINBASIC* is a version of *BASIC* that gives you ready-written code for many of the *Windows* functions. A new release, *WINBASIC 2*, lets you use the Dynamic Link Libraries (DLLs) to use the *Windows* Application Programming Interface, which contains many of the routines that let *Windows* applications talk to DOS. You can also get at the COM ports, for controlling printers and modems from an application. If you bought an earlier release of *WINBASIC*, you can get a free upgrade from Blackwell's on 0865 240201.

● Even though *dBASE* doesn't run under *Windows* (yet), you can use your *dBASE* code to create *Windows* applications with a new product from Megatech (081-874 6511) called *dBFast for Windows*. This uses existing *dBASE* code to build *Windows* applications that can have links to other *Windows* applications using the Dynamic Data Exchange mechanism. That means that if you are using information from your *dBFast* application to draw graphs in another package, you can update the information and the graph will change to reflect your new values.

Most *dBase* commands and functions are supported, so you won't need to change your code very much. There are also some 200 extensions that give you mouse support and *Windows* features like pull-down menus, lists and buttons. Applications can create graphs and display bit-mapped images.

● If you don't already have *dBASE* code to work from, *Easy Windows* – from March Systems on 0734 404079 – builds *Windows* applications from a series of menus. As you choose icons and images from the design screen, the tables that will store the data in your database are created automatically. As if by magic.

● If you remember to take copies of your programs at the right time, you can do version control for yourself. That means that if you change your mind and decide to go back to that first working version of the program, it's in your archives, named and dated. Real life is rarely that simple and you may need some help. Many commercial version control systems are designed for large systems. *The Sorcerer's Apprentice* from Solutions Systems (0763 244141) is designed to work from inside the *Brief* text editor, which a good many programmers swear by.

Different versions of a program are numbered and stored in a source code library. Only the differences between the most recent version and the previous file are stored, so you won't need to use hundreds of disks. If you're working on a project with other programmers, you can lock old versions, so that two people can't make different changes to the same file at the same time.

UNDOCUMENTED DOS

Authors: Andrew Schulman, Raymond J. Michels, Jim Kyle, Tim Paterson, David Maxey and Ralf Brown • Publisher: Addison Wesley • ISBN: 0-201-57064-5 • £35.95

The manuals to a product tell you what it can do. If you want to know what you can do with it, a book is more likely to help. In the case of MS-DOS, the official manuals don't cover the most interesting bits – the *MS-DOS Encyclopaedia* from Microsoft Press tells you everything that it wants you to know. If you want to know about the functions that Microsoft doesn't want you to

know about, you need *Undocumented DOS*. One of the authors, Tim Paterson, wrote the original QDOS (Quick and Dirty Operating System!) that became MS-DOS – so you can rely on the information in these pages.

The book is organised in a similar way to the standard DOS technical manual, covering functions and data structures. It's full of examples, all of which are on the floppy disk that comes with the book. Not only do you get all the inside information on programming the operating system, but you also get some handy utilities, including on-line hypertext documentation for all DOS functions.

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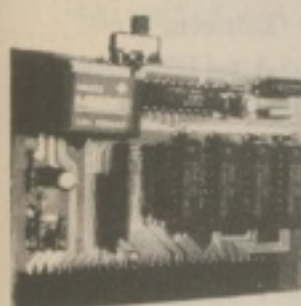
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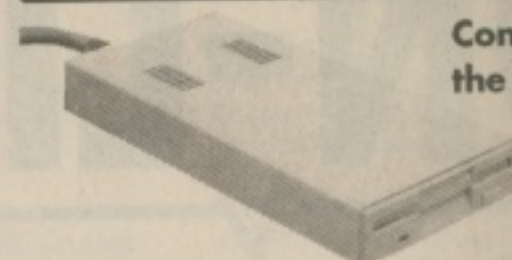
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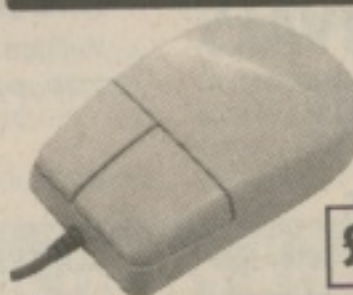
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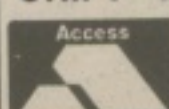
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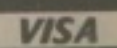
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The *Express* guide to computing at the grass roots level this week features PD libraries and User Groups

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FANZINES

STYLE – The new newsletter for Atari ST/e PD fans. Lots of special offers. Send SAE for your copy to: 66 Abbey Road, Rochester.

AXS QUARTERLY JOURNAL –
The leading light's AXS Quarterly
Journal. Amiga disk-based fanzine of
PD, Comms, etc. £5 years
subscription! Send for yours! 14,
Meads Road, Guildford, Surrey.

C64 RESET POKES – Only booklet with over 300 pokes. Only £2. Old and new games. Write to C64 Pokes, 12 Dudley Road, Brighton, East Sussex, BN1 7GN.

PROJECT 'X' – Fanzine, club and shareware library for PC owners.

Send stamp for details: 48 King
William Dr, Cheltenham, Glos GL53
7RP. Prestel 01-111 5474.

USER GROUPS

SOFTWARE EXCHANGE SERVICE
– Small friendly games swapping for Amiga. Over 200 original titles. Free PD swaps! SAE 13 Bournville Lane, Birmingham B30 2JY. Tel. 021-459 7576.

ELITE PLAYER GROUP – Swap hints, tips, etc. Fanatics welcome. Beginners welcome. Write: Ian Hurst, 7 Perrybrook Walk, Ashton in Makerfield, Wigan, Lancs WN4 8TR.

BULLETIN BOARDS

BUSBY'S HOTLINE – The meeting place for those interested in communications and satellite TV. 24 hrs. V21, V22, V22bis, V23, V32 & V32bis + MNP. A GT BBS. Call 041-762 2000.

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PD LIBRARIES

PJ DEMOS – Amiga PD. For just 30p send a disk for our catalogue. Only SAE will be returned. Send to PJ's Demos, 63 Park Lane East, Hull HU4 6TW.

JENNIX PD – Hundreds of Atari PD disks containing thousands of programs. Send 50p (cheque payable: Jennix PD). For disk-list write to: 66 Abbey Road, Strood, Kent ME2 3QB.

ANDRIKKOS PC LIBRARY – PC
Shareware from £1 per disk.
Hundreds of top quality programs to
choose from. SAE for list to: Andy
Kyriacou, 17 Parkhurst Road,
London N22 4JQ.

C HACK'S PD LIBRARY – Captain Hack's PDL. ST Demos/Adult. Free disk catalogue; Blankie 60p + SAE to 19 Latimer Drive, Laindon, Basildon, Essex SS15 4AD. Tel. 0268-416 888.

PD ST – PD Disks from £1. Disk based catalogue 50p. Quote NCE for special discounts. Send to PDST, 95 Elton Road, Sandbach, Cheshire CW11 9NF.

STUPID FLOWER PUBLIC DOMAIN – New library for ST users. Send an SAE and blank disk to

SFPD, 3 Read Mead, Glastonberry,
Somerset. BA6 8DN.

THE SOURCE PD – For the Atari ST. Compacted demos disks. £1.50 each. Write to: The Source PD, 7 Shearwater Lane, Norton, Stockton, Cleveland TS20 1SH.

XT SHAREWARE – For sale or swap from £1 for 5.25 inch, £1.20 for 3.5 inch. SAE for list. Kowalik, 24 West Chilton, Ferryhill, Co Durham.

LAZER PD – Amiga PD from 35p.
Send SAE for list or disk and SAE
for catalogue disk to: 57,
Adamthwaite Drive, Blythe Bridge
ST11 9HL

MERTON PD – Cheap Atari PD.
Send blank disk or £1 (payable to Mr
TA Huq) for catalogue with SAE to:
Merton PD, 10 Grasmere Avenue,
London SW19 3DX.

JASSOFT PD – IBM PC PC
software from 75p per disk. Send an
SAE for free catalogue to: Jassoft
PD, 25 Connaught Square, London
W2 2HL.

WARPDRIVE – The best in Amiga PD. Send for free catalogue. Disks 89p, p&p 50p per order. 110 Burton Avenue, Balby, Doncaster DN4 8BB.

SHIELDSOFT PD – Amiga PD 75p per disk. SAE for details. Personal service. Basic helpline. Catalogue update every three months. Swaps - send your own programs. 13 Churtom Road, Rhyl, Clwyd LL18.

TRIDENT PD – Exchange your unwanted PD disks with us free. Send SAE for details and list to Trident, 19 Dunley Gardens, Newtownabbey, Co Antri BT37 9HZ.

NO FUSS SHAREWARE – For PC.
Prices from £1. Contact: NFS, 48
King William Drive, Cheltenham,
Glos. GL53 7RP. Prestel 01-111
5474.

ACADEMY – PC shareware. For details send formatted disk and stamp to Academy, PO Box 65, Herne Bay, Kent CT6 8YZ.

PAD PUBLIC DOMAIN LIBRARY –
PAD PD and shareware library/club.
Please send SAE for further details
about the only club in East Anglia for
the Amiga user. Write to PAD, 41A
Saint Augustine Street, Norwich.

IMAGE ART PD – Specialising in IMG format pics for DTP/other categories. No games!! Send £1.50 for catalogue and disk, rechargeable against purchase. 11 Ashleigh Point, Dacres Road, SE23 2XL. Tel: 081-291 4094.

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IBM SHAREWARE CLUB - Send blank disk for full list and details to 23 Houldsworth Rise, Arnold, Nottingham, NG5 8HZ.

JENNIX PD - Atari ST/STE Public Domain specialists. Over 400 disks from only 90p each. Send 50p for a disk list to Jennix, 66 Abbey Road, Strood, Kent.

JOEL'S PD GAMES - for Amiga users. PD disks only 90p each. For a catalogue send an SAE to Joel's PD Games, 389 Scalby Road, Newby, Scarborough, North Yorkshire, YO12 6TG. Please add a blank disk.

LAZER PD - 100 Amiga PD disks, 95p each. For catalogue/disk sent 95p (cheques/PO's payable to J Deavall) to: 57 Adamthwaite Drive, Blythe Bridge ST11 9HL.

LIGHTENING SOFTWARE PD CLUB - We can provide PD titles free of charge! Amiga only. For details send an SAE to Brian Roscoe, 14 Kingsmead Road, Moreton, Wirral L46 1QU.

MACH MAC PD - Explosively good public domain for the macintosh. £1 for demo disk and catalogue of over 900 disks. Write to MMPD, Highover, Udimore, Nr Rye, East Sussex.

MG SOFTWARE - £2 per disk of Atari ST Public Domain. Send me 95p for my catalogue of great stuff. Mark, MG Software, Connerways, Beckingham Street, Tolleshut Masor, Essex.

MY PD - Over 1200 disks at 99p each. For Amiga catalogue disk send 80p PO or cheque to Jagla, 92 Firtrees, Thurgoland, Sheffield S30 7BG. Tel 0742 884183.

NIGHTSHIFT PD LIBRARY - Clip Art, demos, exclusive samples, utilities, Atari ST. Send SAE and 50p for catalogue to Nightshift, 8 Bertelin Road, Beaconside, Stafford ST16 3JJ.

PERSPECTIVE PD - Free Amiga PD! Don't believe us? Try! Send 25p for a printed catalogue or 60p for disk catalogue. 6 Clover Close, Cumnor Hill, Oxford OX2 9JH.

PC SHAREWARE - At sensible prices. 50p to £1.50 per disk. Send disk with SAE to Rosie, 63 Springboig Road, Glasgow G32 0DB

PC-PD SHAREWARE - All disks £1.50. Postage £1 per order to PC-PD, GMC Computers, The Green, Cavendish, Suffolk, CO10. Tel 0787 280 526. Credit cards accepted.

PC SOFTWARE - PC Serve, 1147 Greenford Rd, Greenford, Middx UB6 ODP. Tel 081-864 2611, BBS 081-864 2633

PCW PD CLUB - Swap PD for PD, up to three disks full at a time. All PCW owners welcome. Write to 3 Moorend Ave, Chorley Wood, Birmingham, B37 5SD.

PD-X AMIGA PD - From 50p. Send an SAE to PD-X, 48 Sedgebrook Grove, Hull, HU7 5EB and we will send you a catalogue. Good quality Empire/UMS Data disks £3

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Prospect Road, Oulton Broad, Lowestoft, Suffolk, NR32 3PT. Tel: 0502 513923. Disk list £1. Cheques/POs payable to Performance PD.

POWER PD - 90p per disk. Wide range. Send 90p for current Amiga catalogue on 3.5 inch disk to Chris Jackman, 3 Albion Terrace, Lexham Road, Litcham, Kings Lynn, Norfolk.

POTENTIAL PD - for the Atari ST. Public domain to sell and swap. SAE to Helenville, School Road, Coldingham, Berwickshire.

PRESTIGE AMIGA GAMES (UK) - Amiga Games for sale or exchange. Large PD Library. Send SAE for full list to K Harvey, 67 Waverly Road, South Benfleet, Essex SS7 4AX.

PRIVATE COLLECTOR - Atari STE Public Domain. Over 300 titles. Send blank disk (or 50p) and SAE for list to: N Rodell, 72 Lancelot Avenue, Stroud, Kent.

PRIVATE SHAREWARE - Send blank disk and stamp for catalogue. Very Cheap. Write to Frank, Combe Rise, Luppitt, Devon, EX14 0RT. IBM only. Telephone 0404 891806.

PROPHECY PDL - Atari ST Public Domain. Send SAE and disk or a cheque for £4.50 to Prophecy PD, 390 Coulsdon Road, Old Coulsdon, Surrey, CR5 1EF.

R&G PD - For cheap Amiga PD send SAE for list to R&G PD, 23 Melmount Gardens, Strabane, County Tyrone, Northern Ireland or send a disk for list and game. Also willing to swap.

RICHARDS PD LIBRARY - Support for Amiga PD. A massive range of demos, utilities, music, AMOS, Slideshows etc. Most disks £1.50. Some £2.50. All disks dispatched as soon as we receive the order. 74 Cross Deep, Twickenham, Middx, TW1 4RB.

S&T PD for the ST. Large selection of PD from £1. Send £1 or a disk and 50p for a list. All prices include postage and packaging. Send cheque or PO to Simon Eve, S&T PD, 6 Crediton Road, London, NW10 3DU

SAINT JOHN'S SCHOOL LIBRARY PDL - Atari/ST PD software for sale or swap. Write to St John's School Library PDL, c/o Mark Ash, 54 Beaconsfield Road, Sittingbourne, Kent. ME10 3BB or telephone 0795 425653 after 4pm.

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SCOTSOFT INTERNATIONAL - For the ST. Send three first class stamps for disk catalogue to 47 Auchingane, The Tryst, Edinburgh, EH10 7HX. Disks supplied are branded.

SHAREWARE KING - 3,000 items of Shareware for PC, plus support, membership, plus discounts. SAE and blank disk for details to C Smith, 10 Penwood Close, Westbury, Wilts, BA13 3LW. Tel 0373 865263.

SHIELDSOFT PD - For the Amiga. Only 75p per disk. SAE for details to 13 Churton Road, Rhyl,

Clwyd LL18 3NB. Three month update. Personal service. Helpline for BASIC programmers.

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THE ST ADVENTURER'S PD LIBRARY - PD for all ST users. Adventure, more adventure and even more adventure. Catalogue disk just 50p. Write to John R Barnsley, 32 Merrivale Road, Stafford, ST17 9EB.

STAR PD - Software for the Atari ST/STE. Hundreds of disks available. Send blank disk and SAE for free PD and disk based catalogue to Star PD, 1 Solva Road, Clase, Swansea.

STATE 808 PDL - For ST art, demos (good selection) and games!!! Very cheap!!! Just send an SAE and disk to: State 808, 3A Old Lanark Road, Charluk, ML8 4HW.

STEVE'S AMIGA PD - Catalogue disk. See demos, play games, usable virus killer and a PD catalogue. Send £1 plus 9x4 SAE to Mr S Fitch, 1 The Croft, Welwyn Garden City, Hertfordshire.

STUPID FLOWER PD - new library for ST users. Send an SAE for a free catalogue to SFPD, 3 Read Mead, Glastonbury, Somerset BA6 8ON or call 0458 35027 and ask for Matt.

THE SURREY PD CLUB - Atari ST PD for only £1 per disk. Send an SAE to the Surrey PD Club, 25 Windmill Way, Reigate, Surrey RH2 0JB.

SWPD - PD software from 70p. Send SAE for

free catalogue. Atari ST only. SWPD, 50 Coombe Lane, Torquay, Devon TQ2 8EA.

SYSTEM PUBLIC DOMAIN - Archimedes. For 4 megs of the best graphics, RISCOS APS, utils, Drawfiles, sprites, games, music and samples send five formatted disks, an SAE and £1 to Highover, Udimore, Rye, East Sussex TN31 6BG. Cheques postal orders to Mr EJ Thomas.

TOTAL PD - for the ST. Send SAE for free catalogue to Total PD, 27 Stanmer Villas, Brighton, East Sussex, BN1

TRIPLE X - We are the only PD Library dedicated to ST Adult Software! £2 per disk. Write for your free catalogue! Triple X, Babak Ghaxi, 3 Lansdowne, Carlton Drive, Putney, London.

TYPECAST PDL - Catalogue issue two out now. PD, DTP, WP, art and clip art for Atari ST/STE. No games. Send disk and SAE for catalogue to 31 Hartfield Crescent, West Wickham, Kent BR4 9DW.

WEST COUNTRY PDL - ST Public Domain and shareware. Large library. Send stamped addressed envelope and blank disk or £1 for catalogue to PO Box 2, Lynton, North Devon.

WHITE HEAD PDL - Atari ST PD from £1.40 per disk. Send two second class stamps for latest list to Hakan Akbas, White Head PDL, 15 Cavendish Mansions, Clapton Square, London

XT SHAREWARE for sale or swap from £1 for 5.25 inch and £1.20 for 3.5 inch disks. SAE for list to Kowalik, 24 West Chilton, Ferryhill, Co Durham DL17 0HH.

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20 JULY - Kempton Park Racecourse, Lower Staines Road (A308), Sunbury-On-Thames.

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27 JULY - Harrow Leisure Centre, Harrow, Middlesex.

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- Prices at auctions can be quite a lot lower than in shops, but you will have to pay in full on the day.
- Make sure to get a catalogue before you go along. If you phone the companies they should be happy to supply you with one.
- Set yourself a limit.
- Give any items you are considering bidding for a good looking over and check if there is any warranty. If there is not you still have the rights of a second-hand buyer. Under the Sale of Goods Act you are entitled to a refund if the item is faulty or does not match up to the description given.
- Wait for the auctioneer to call the first bid. He'll come right down if no-one offers.
- Don't be tempted to outbid over the odds. You might come up against a dealer for whom a bargain is just a higher than normal margin.

SPOTLIGHT ON

YOUR GROUPS AND FANZINE

We receive a lot of information about PD libraries for this spot, but very little about groups and fanzines. So here is a request for all you editors and group organisers to get your pens out or printers whirring and get writing in.

Of course, what we're really after are groups and fanzines with a bit of a difference. So, if you're running a Dragon user group or put together a newsletter

for all Lynx loving footballers with pulled ligaments, tell us all about it.

So don't miss this chance to blow your own trumpet. Send all your fanzines, disk magazines and user group information to:

SPOTLIGHT, *New Computer Express*, 30 Monmouth Street, Bath, Avon BA1 2BW.

Piccies would go down a treat, too!

FANZINES A TO E

ABC AMIGA BEGINNERS' CLUB - PD library review. More info in beginners' pack. Send £1.50 to Ian, 110 Whitehill Park, Limavady, Co Londonderry, N.Ireland, BT49 0QG. Tel: 0504 765174

ACORN ARCHIMEDES.RISC USER 117 Hatfield Road, St Albans, Herts.

ACORN ARCHIMEDES Archive, 18 Mile End Road, Norwich NR4 7Q

AMATEUR RADIO (CBM) - Simon Lewis GM4PLM Commodore Radio Users Group, 69 Irvine Drive, North Clippens, Linwood, Paisley

AMIGA HELP CENTRE - A group to help novices. For CLI help disk and registration send £10 to Simdev, 29 Avon Square, Hemel Hempstead, Herts.

AMIGA HELPLINE SERVICES - Free club for young and old. Send SAE to G Keenan, 21 Skirsa Place, Glasgow, G23 3EE.

AMIGA LOST GAMES CLUB - We are setting up a group to program Amiga games and send out demos to the different publishers so we need designers, coders, artists and musicians for the Amiga. Ring 0782 266964.

THE AMIGA TEAM - A group to help novices. Help given in programming - Assembly, BASIC, C, Logo, Pascal and CLI. For registration and introduction pack send £10 to 11 Beech Grove, Northallerton, North Yorks, DL6 1JY

AMSTRAD BUSINESS USERS - Amstrad Professional User Club, enterprise House PO BOX 10, Roper St, Pallion Ind Estate, Sunderland SR4 6SN. Tel 091-510 8787

AMSTRAD CPC USERS - Tony Baker, United Amstrad User Gp, 26 Uplands Crescent, Fareham, Hants PO16 7JY. Tel 0329 234 291

AMSTRAD CPC HOME USERS - Steve Williams, WACCI, 9 South Close, Twickenham TW2 5JE. Tel 081-898 1090

AMSTRAD LOCAL GROUPS - Amstrad Groups Federation, 4 Sutton Road, Gorton, Manchester

AMSTRAD PC SOFTWARE - Colin Smith, Colbar, 10 Penwood cl, Westbury, Wilts BA13

AMSTRAD PCW - Bob Ellis 'Rowan' 100 St Peters Close, Moreton-on-Lugg, Hereford HR4 8DW. 0432 761 860

AMSTRAD 1512/1640/PPC - PC Independent User Group, The Computer Advice Centre 87 High Street, Tonbridge, Kent. Phone 0732 771 512

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APPLE II USERS - tel 051 9284142.

APPLE MACINTOSH. John Lewis, Macintosh user group, Macintosh House, 11 South Parade, Summertown, Oxford OX2 7JL

APPLE SYSTEMS - Irene Flaxman, Apple 2000, PO Box 3, Liverpool L21 8PY.

ARABIC COMPUTING - Rich Lackey, Arabits, 9 Bellview road, Worthing, West Sussex BN13 1EY

ATARI ALL MACHINES - Colin Hunt, BaPAUG, Wimborne Road, Oakdale, Dorset BH15 3EF

ATARI AND ST PC EMULATOR SUPPORT CLUB - SAE to 153 Parrock Street, Gravesend, Kent, DA12 1ER

ATARI PORTFOLIO - D Gilpin, Atari Portfolio User Group, 84 Cambridge Avenue, Gidea Park, Romford RM2 6QU. 0708 730764

ATARI ST DIY HDISK BUILDERS CLUB - information on how to build from scratch an HDisk system for your ST. Help given on what you'll need and how to connect it all up. Call

0495 272092

ATARI ST - Paul Glover, The ST Club, 9 Sutton Place, 49 Stoney Street, Nottingham NG1 1LX. 0602 410241

ATARI ST demos/PD wanted. If you can write demos or want exclusive titles. Write to ST Demos, 8 Bertelin Road, Beaconside, Stafford, ST16.

ATARI ST/STE HELPLINE - We can scan, digitalise and provide loads of clip art. SAE to Nist 53, Lenaghan Park, Belfast, BT8 4JB

ATARI ST USERS ASSOCIATION - provides support for all Atari ST/E users. Help and advice given. Quarterly club magazine and disk. Also exclusive PD library for members. For further information write to ASTUA, 18 Poplar Close, Biggleswade, Beds, SG18 0EW

BBC MICRO - BEEBUG, 117 Hatfield Road, St Albans, Herts AL1 4JS. 0727 40303

BASIC PROGRAMMERS' GUIDE - for all BASIC programmers. Phone Andy on 081-648 4326.

BATPUG - Turbo Pascal user group also open to other PC Pascal programmers. Costs £10 per year. Write to 12 Clegg Avenue, Cleveley's, Blackpool, FY5 9BJ. Send an SAE for sample.

BOMB OUT BROS - A new ST PD coding group wants new members to help expand our range of games, demos and utilities. Write to Adrian Speight, 25 Gilbert Crescent, Llanelli, Dyfed.

BRIDGE CENTRE AMIGA CLUB - A club not just for Amiga users but anyone who wants to become familiar with the Amiga. All age groups welcome. Games, music and educational software. PD software £1. Membership £3 a year and an additional 20p every Friday. Come to our meetings at the Bridge Centre, Haddington, East Lothian, Scotland every Friday.

C64 PD CLUB - E Masaba, 84 Garmoye Rd, Liverpool L15 3JH

C USERS GROUP - Francis Glassborow, 64 Southfield Road, Oxford OX4 1PA. For everyone interested in the C and C++ programming languages. Publishes a bi-monthly newsletter.

CAMBRIDGE Z88 - Roy Woodward, Z88 Owners' Club, 68 Wellington St, Long Eaton, Nottingham

CD ROM - UK CD-ROM User Group, High Wings, Salem, Treforys, Abertawe 0792 844 370

CHESHIRE 16-BIT USERS CLUB - Amiga, ST, PC, Arc at Radley Common community centre, off Poplars Avenue, Orford, Warrington, Friday nights. All welcome. £1 admission.

CHESS COMPUTER PROGRAMMERS and interested players send an SAE to Steve Roe, 25 Nene Walk, Worksop, Notts or ring BBS 0909 479080

CHOICE - on-line help. Tel 0308 23224

CHESHIRE NIMBUS USER GROUP - Geoff

Nelder, Queens Park High School, Handbridge, Chester

CHURCH ADMINISTRATION - Rev Stoker Wilson, Church Computer User Group, St John's Vicarage, Greenside, Ryton, Tyne & Wear NE40 4AA. 091-413 8281

CID (Computers and Integration for the Disabled) is a registered charity. Write to Gordon, Chelsea Road, Inverurie, Aberdeenshire, ABS 9QZ or tel 0467 24202

CLERGY/MEDICAL EDUCATION - Mr T Jones, FREE-ED Shareware/PD 85 Stoke road, Taunton, Somerset TA1 3EL. Tel 0823 321 481

CLEVELAND AMIGA CLUB - Thought our Amiga scheme should get organised. Tel 06542 252133 and ask for Barry or write to 30 Aske Road Middlesborough, Cleveland, TS1 4DA. No lamer's. Hope to start PD club and fanzine.

CLUB A3000 - The largest Archimedes User Group in London! Visit our second open day on Sunday 23 June. For more details please contact us on 081-445 2126.

CLUB AMIGA answers your questions on software and hardware on its 24 hour helpline. Join now. Send £5 to Club Amiga, 5 Bowes Lea, Shiny Row, Tyne and Wear DH4 4PP.

CLUB M - Monochrome ST user group needs members. Dedication, enthusiasm and a sense of humour are the only membership fees. Small ever expanding PD Library. Write to CLUB M, 59 Maple House, Idonia Street, London SE8 4LT.

COBOL LANGUAGE - Allen Reavie 22 Mourneview St, Portadown, Northern Ireland. BT62 3AW

COLECO ADAM - Keith Mamer, UKAS 33 Homer Road, Croydon CX0 7SB

COMMODORE ALL MICROS - Jack Cohen, ICPUG, PO Box 1309, London, N3 2UT. Tel 081-346 0050 after 6pm

COMMODORE 64 CLUB has been on the go for the last five months and new members are welcome. For more details send an SAE to The C64 Club, 20 Finlow Place, Dundee, Scotland

COMMODORE AMIGA - UK Amiga Users Group. Contact 144 Charles Street, Leicester LE2 0OD. Telephone 0533 510066 voice; 0533 517615

COMMUNITY COMPUTING - Community Computing Network 2nd Floor, 35 Pink Lane, Newcastle, NE1 5DW. Tel 091-261 0317

COMPUCORP. Compucorp University users group c/o Compucorp, Cunningham House, Westfield Lan, Kenton, Middx

COMPUNET - write to Independent Compunet Club, 148 Furzehill road, Boreham Wood Herts. WD6 2DX

CONFERENCING - Compulink, suite 2, The Scantuary, 23 Oakhill Grove, Surbiton, Surrey KT6 6DU Voice 081-390 8446. CIX BBS 081-

399 5252

CPM & MSDOS Users Group - 42 Birkbeck Road, Wimbeldon, London SW19 9NZ. Tel 081-543 0824

CRYPTOGRAPHY & CODES - Mike Barlow, American Cryptogram Association 5052 Chestnut Avenue, Pierrefonds, Quebec HBZ 2A8 Canada

DATAEASE USER GROUP - High-Tech House, 10 Blackfriars Street, Norwich, NR3 1SJF

DISABLED - Jeff Hughes, Special Needs User Group, 39 Eccleston Gardens, St Helens WA10 3BJ 0744 24608

DESKPRESS USER GROUP - Is there one? Fancy starting one? If your answer is yes to either of the above, please write to me, Raymond Day, at 3 Hall Terrace, Willington, Crook, Co Durham, DL15 0QN.

DRAGON - Paul Grade, National Dragon Users Group, 6 Navarino Road, Worthing, Sussex or tel 0903 207585

ECONET - Michael Ryan, Econet User Gp, Balkeerie Cottage, Eassie by Forfar, Angus DD8 1SR

EDUCATION - Charles Shannon, TECUG, 35 Wellington St, Gravesend, Kent DA12 1JG. Tel 0474 567 931

EIGHT-BIT BACK-UP 8-bit user group for all. 25p plus SAE, to: 8-bit back-up, 1 Northolme Close, Grays, Essex.

EINSTEIN - Graham Bettany, UKEUG 80 Dales Road, Ipswich IP1 4JR

EINSTEIN PD USER GROUP - Help and advice for all Einstein users. Over 100 disks of PD software. Send SAE to SW Knowles, 23 Howldsworth Rise, Arnold, Nottingham, NG5 8HZ

ELMSOFT PUBLIC DOMAIN SERVICE for the ST any weekend at Camden canal market, Haven Street, London

EMULATE. For Amiga, Amex. Monthly newsletter. Write to Pat 12b Northbrooks, Halrow, N Essex

ENTERPRISE - William Creaser, 6 Provident Street, Shaw, Oldham, DL2 8AQ. Independent Enterprise User group. Tel 0706 881382

ENTERPRISE - Tim Box, Independent Enterprise User Group, 50 Holdenhurst Avenue, Finchley, London N12 0HX. Tel 081-346 8032

ENET (like Econet) - T K Boyd, Enet (Amcom) User Gp, Seaford Cottage, Petworth, West Sussex

EUG - The Acorn Electron User Group. 'The ELK is not dead yet!' Send large SAE for details to EUG 134 Great Knightleys, Basildon, Essex ss15 5HQ.

CONTINUED NEXT WEEK

SHOPPING EXPRESS BUYERS' GUIDE

While Shopping Express is undoubtedly the perfect way to track down the best bargains in the computer world, many people are still wary of buying products via mail order or through personal ads. This is probably because usually you are not able to have a look at what you are purchasing before you hand over your money.

We do everything in our power at this end to make sure that all the advertisements we run are above board. But here are a few tips designed to help take the risk out of buying via mail order or over the telephone.

- Be precise in describing what you want to buy. Leave no room for error. Feel free to go overboard in double checking details - make, model, specifications, colour, size, the page number and name of the magazine in which you saw the advertisement etc.

- Confirm the exact price of the article you are buying. If you are phoning a company check if there are any hidden extras, such as postage and packaging.

- Check how the item will be delivered to you and how long it should take. This is especially important with reader ads where delivery details are rarely mentioned.

- If you are writing off for the product keep copies of all letters. If you are phoning, note down details of when you phoned and who you spoke to.

- If possible enquire about guarantees and servicing. Check the supplier's policy on returns and refunds. With reader ads, it is best to make the effort to see the item personally before you hand over money.

- When possible pay by credit card for items over £100, as this provides extra cover under the credit card companies' own insurance schemes. Otherwise use a crossed cheque or postal order. Avoid sending cash at all costs.

The EVENT HORIZON

Who's doing what, with what, with whom, how, why and where...

THE PLACES TO BE...

Making the Difference

Now - Tue 31 Dec
At the Science Museum, London. Info: 071 938 8080.

OIS IMC '91 Tue 2 - Thur 4 July
At the Wembley Conference and Exhibition Centre. Info: 071 931 9985.

PC World Forum Tue 9 - Sun 14 July
In Moscow. Info from Terence Coe on 010 1 508 820 8122.

International Music Show
Wed 10 - Sun 14 July
At the Olympia, London. Info: 071 730 7852.

The International 16 Bit Computer Show
Fri 12 - Sun 14 July
The show for Amiga, Atari and PC users is now in its fourth incarnation. Like the previous one, it will be held at the Novotel Hotel, Hammersmith, London. Visitors will be able to try out and

buy just about every conceivable piece of hardware and software. New products will also be launched in the home entertainment and professional areas.

As well as the buying public, overseas manufacturers will be there, looking for UK companies to accept distributorship of their products. 120 companies have booked space, including Arnor, Checkmate, GFA Data Media, HiSoft, Memory Expansion Systems, Precision Software and Rombo. About 25,000 people are expected to turn up.

Advance tickets cost £3 - contact 0726 68020, admission on the day is £5.

GeoCon '91 Sun 11 - Tue 13 August
At Cambridge, MA, USA. Info: 010 32 03 234 3180.

Computer Animation Competition and Exhibition Wed 21 - Wed 28 August
At the Amiga Centre Scotland. Entries in by 31 July. Info: 031 557 4242.

Leeds Computer Extravaganza
Fri 13 - Sun 15 Sept
At the New Exhibition Centre at Leeds University. Info: 0532 677 657.
Business Computing '91
Tue 17 - Fri 20 Sept
At the Earls Court Exhibition Centre, London. Info: 071-486 1951.

Business Communications Awards
Thurs 10 October
At the Savoy Hotel, London. Entries in by 15 July. Info: 0800 800 847.

Image Processing '91
Tue 29 - Thurs 31 Oct
At the Birmingham NEC. Info: 081-868 9933.

System Builder Wed 30 - Thur 31 Oct
The Original Equipment Manufacturer show for system integrators, at Sandown Exhibition Centre, Esher, Surrey. Info: 0822 614671.

Computer Graphics '91
Tue 5 - Thurs 7 Nov
At the Alexandra Place in London. Info: 081-868 9933.

Desktop Cad '91 Tue 5 - Thu 7 Nov
As above.

All Micro Show and Radio Rally
Sat 9 Nov
At Bingley Hall, Stafford. Info: 0473 272002.

Computers in the City
Tue 12 - Thu 14 Nov
At the Barbican Centre in London. Info: 081-868 4466. ■

Golden Moments

A look back into the history of computing with *Express*. If it happened we reported it first.

ONE YEAR AGO

● IBM released the PS/1, a low-cost 286-based PC designed to knock back the clone manufacturers. Although a reasonably priced machine, and with a good technical spec, it was sadly lacking in expandability. A year later, with IBM holding only 9.3% of PC sales and with the ever-increasing number of third party PC manufacturers, the machine has obviously failed to tighten IBM's grip on the slipping PC market.

● Messages from the dead, including Winston Churchill and a comedian who may or may not have been Eric Morecambe, were received by Ken Limage via his trusty PCW8256. An American Indian predicted that England would win the World Cup in a final against Argentina. Sadly, there is as yet no comms standard between here and the otherworld. The *Express* team lost a fortune at the bookies.

TWO YEARS AGO

● The fastest computer in the world was launched in the US. The NCube was targetted at businesses as well as the more usual scientific establishments. It is 15,000 times faster than an Archimedes, but with 8,192 processors running in parallel, it has something of an unfair advantage.

● Fear of radiation from monitors obsessed 71% of computer users, a survey revealed. How many of these, we wonder, are afraid to sit down in front of the telly of an evening?

● The Queen of the Hackers, Lynn Doucett, was held in Chicago on charges of computer fraud. She had recruited a team of 60 teenagers across the country to aid her in her nefarious activities, which involved hacking into companies's systems and appropriating funds. She apparently recruited her underlings by means of bulletin boards which, as is well known, are great places to get to know people.

The Insider ...

A brief but regular look at the news and views of an industry which is desperate to be loved and then respected in the morning

A NEW FEATURE

It's certainly the month for marketing foot in mouth with the second boob in as many weeks coming from a marketing manager announcing an up and coming upgrade.

"Yes, we're confidently predicting version 3.6 just over the horizon," he gushed into the telephone.

"And what's the difference between that and version 3.4?" we asked.

"Erm...This one works," he said

CHINA IN YOUR HAND?

A recent trade delegation from the land of the bicycle and egg foo yong approached a switched-on Brit company with the idea of unloading a few tons of Chinese TVs on an unsuspecting UK market. The sample was positively state of the ark and

the distributor raised hand to mouth to stifle a yawn.

Over lunch, the delegation mused that while schools were allowed to spend their meagre budget on computer monitors, the much needed TVs were verboten.

Our hero dragged them off to a secret warehouse somewhere in the South East and while still digesting their smoked salmon and avocado, confiscated their briefcase full of Yuan (Chinese money) and sent them east with 10,000 Amstrad MP3 TV modulators to convert their legal monitors into naughty Television sets.

FAIR'S FAIR

The personnel director of a computer company in the US that offered an equal

opportunities staffing policy was revealed by a local TV channel to be a member of several right wing organisations including the Klu Klux Klan.

Was he fired? No siree, but the Klan are carrying the torch for him...

LIFE'S A BITCH

Two multinational companies climbed into bed together in a deal to share R&D and help each other develop products.

Company A provided the wherewithall for a power PC and forgot to write the small print small enough.

Company B noticed the lack of small print and saturated the European market with the PC seven months before and \$2,000 dollars under Company A's launch and price. Company B still promises to respect Company A in the morning!

If gambling is your thing and you are a Macintosh owning person, then you'd better get in touch with Fantasia Shareware immediately. They can supply you with a disc which will solve all your gambling problems in one foul swoop.

HAVE A MACFLUTTER

If you have incurred massive gambling debts and the ridicule of your friends and family, then a cheaper solution is at hand. Fantasia have several games discs for the Mac, one of which is entirely composed of card games.

It includes all the old favourites like

ADDRESSES, THE BITS YOU REALLY NEED

Fantasia
PO Box 1254,
Compton Martin BS18 6JX

Amiganuts
169 Dale Valley Road,
Holly Brook,
Southampton SO1 6QX

L.A.P.D. supply a wide range of ST PD
and can be contacted at;
80 Lee Lane,
Langley,
Heanor,
Derbyshire DE7 7HN

THE PD COLUMN

This week in Public Domain, Frank O'Connor finds a cure for compulsive gambling, a game for brain dead air aces and something for horror freaks...

bridge and solitaire as well as variations on the card game theme. If you want to lose imaginary money to an imaginary opponent, then play *Bill's Casino*. Bill is the author of the program in question and has taken considerable artistic license in calling the prog a "casino".

It is in fact only two games, Blackjack and Jackpot. Blackjack is the American name for Pontoon and the computer plays a mean game. It plays the standard dealer rules - stick on seventeen and twist on anything lower. Sounds easy, but I'm pretty sure the computer cheats. It has an uncanny ability to deal itself royal pontoons and five card tricks with astonishing regularity.

Jackpot is a cheap way to lose money. Cheap, in that the money in question is computer generated. Pop the money in the slot of a very ugly one armed bandit and pull the lever. The object of the game is to, well, win loads of dosh I suppose, but as you can't actu-

ally spend any of it, the point of the exercise is somewhat lost. Still, it is mildly entertaining and passes the hours quite merrily for a time.

If you do contact Fantasia, you should ask about *Enchanted Menus*. It's quite an old program, but it could make a wonderful practical joke. Once installed, it makes menus shift around in a most alarming manner. Very infuriating for the user and very amusing for the prankster responsible.

SERIOUS MONEY

If you can afford to own an IBM PC, then you won't need to read the next bit, but if you have access to one and you want to get rich quick then read on. It isn't guaranteed, but apparently there's a dead easy way to make million pounds.

Interested? Thought you might be. All you have to do is win the pools! Simple eh? Apparently, all you have to do is forecast the results exactly of several football matches, hoping that at



• Air Ace 2 is probably the best free shoot-'em-up you are ever likely to see on the Amiga. Definite shades of 1942 here, I think!

WHY WASTE MONEY?

JUST LOOK WHAT YOU CAN GET FOR

£2.50 +50pp

GAMES

China Challenge 2 (Great Sequel)
Missile-Command (In Hi Res)
AirAce 2 (Best PD Shootem up ever?)
Squares Game (EXCLUSIVE RELEASE)

UTILITIES

Master Virus Killer 2.1 (The Best)
TextPlus 3 (The Latest Word Pro)
Spectrum Emulator (Your Joking!)
Utility Boot maker (Essential)

TOO GOOD TO BE TRUE?.....KEEP READING ON

See great DEMOS like...Harlequin - Overdose - Dexions Blind Justice
How about some great Articles and Reviews and even Free Competitions

INTERESTED?... THEN WHY NOT TRY ISSUE No 2 OF

S C A N N E R

The 2 DISK magazine for the Amiga that leaves the rest standing still

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TELESCAN COMPUTER SERVICES (NCE)
Handsworth Road, Blackpool, North Shore FY1 2RF

least eight of the matches you choose are no score draws.

If your maths is a bit off then you should know that the chances of getting it right are pretty small. This program changes all that by doing the maths bit for you. It's not foolproof and by no means delivers results, but it does cut down the chance factor.

It's very easy to use and will get your hopes up every week, only to dash them at the weekend. Invaluable.

BOMBS AWAY CHAPS

Amiga owners are in for a treat this week. Amiganuts, kind chaps that they are, sent in a disc packed full of games, one of which is the best PD shoot-em-up ever. Er...probably. Called **Air Ace 2**, it sees you as the pilot of a World War 1 bi-plane, flying deep into enemy territory and giving the Hun the kicking they so richly deserve.

It follows in much the same mould of classic shoot-em-ups like **1942** and **Slapfight**. The bad guys zoom down in formation from the top of the screen (and occasionally from the bottom), swooping, diving and loosing off bursts of machine gun fire in your direction.

It all gets very frantic very quickly and it soon becomes a case of autofire on and brain off (or vice versa, depending on how good you are). The graphics are quite lovely for a PD title and scroll smoothly and quickly. The backdrop of

verdant jungle terrain is wonderfully drawn and suits the game perfectly.

Sprite animation is superb, especially the end of level guardian (look, it's the Goodyear Blimp), a massive and imposing dirigible.

The sound effects are outstanding; lots of sampled voices and explosions, all beautifully implemented.

The game has a very high quality feel and wouldn't look out of place at full price as an arcade conversion. It is completely free!

All in all a noisy, frenetic and ultimately wonderful game. But that's not all! It comes on a disc packed to the brim with a selection of equally wonderful games. Wow!

AMIGAVILLE HORROR

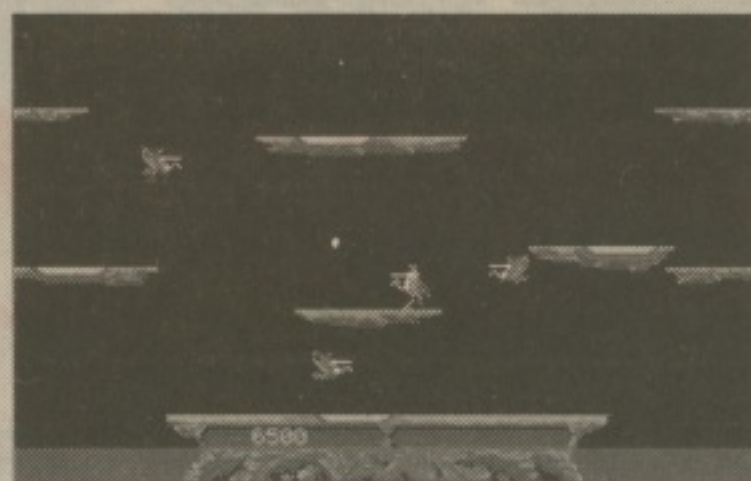
Amiga sickos where are you? Come on, we know you're out there, lurking in the shadows, pondering thoughts of inexplicable violence and gore.

Instead of festering away in the cesspit of your mind, you should scope out a particularly gruesome piece of software from New Wave.

It's an animated digitised slideshow of schlock horror gore, featuring snippets of famous horror films, including the all time classic **Scanners**. This bit features the part where a guy's head explodes.

Not nice, not wholesome and not the kind of thing you'd show to your maiden aunt. ■

COME JOUSTING



• An ancient William's coin-op makes an appearance on the ST and very good it is too. Ostrich jousting was never so much fun. Weird indeed and weirder still is that Atari have released the official version of Joust on the PD scene!

ST gamers are about to be presented with one of the greatest games of all time. Now available on the PD circuit is the ancient arcade classic **Joust**. The disc was sent this way by L.A.P.D. in Derbyshire. I'm not entirely sure what the deal with this disc is. It seems to be the official version, programmed by Atari themselves, just why it's available on PD is a bit of a mystery.

No complaints from this direction though, as getting one of the bestest, weirdest, nastiest games ever for free is hardly a problem. **Joust** is weird though. You control a knight, who rides just about the strangest mount ever. It's a flying ostrich. No seriously, and it's set in a mystical medieval time when lance-bearing knights did that kind of thing all the time.

The point of the game is to navigate the bird from platform to platform, knocking out opposing knights as you go. This is quite tricky. To fly, you tap the fire button repeatedly to flap the ostrich's wings. You can then move left and right as you rise.

To take out a bad guy, you have to be higher than him and land your bird on his head. This can be difficult, as the platforms bounce you around when you hit them. Dead birds drop eggs, it's a good idea to catch these for bonus points. If left, the eggs hatch, revealing more dangerous birds and knights to go with them.

The graphics are simple and attractive. Weird is definitely the watchword here though and this game will keep you up into the wee small hours of the night. It's a perfect conversion of a perfect coin-op and you can't say fairer than that can you?



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However, Amiganuts and the author, Teijo Kinnunen, want it to be within the reach of all Amiga enthusiasts, so we are keeping the price down. You can purchase this great program for only £10.00 within Europe (£15.00 for non-European). The price includes return post and packing. Payment in pounds sterling only, if ordering from overseas, send a bankers order/eurocheque etc. (Credit card orders will not be accepted).

A full instruction manual for this program will become available later, but due to the high costs involved, it will be quite expensive!

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BUG-BASH: Get that garden tidied up! An excellent kids game.	£3.00	NUCLEUS: A budget shoot-em-up that will keep you occupied.	£3.00
1036: AMIBASE PROFESSIONAL II. The new additions to this database make it a must have, includes picture addition facility. (1 Meg)	£3.50		
876: QUIZMASTER. Think you know it all? Well now you can prove it. Save and re-load facility. For 1 to 4 players. Excellent!	£3.00		
877: 1 ACROSS 2 DOWN. A fully fledged crossword program, (Data disk no.1 supplied free!), for only £5.00. Data disks 2,3, 4 are £2.00 each			
INTO CODING? - Want to learn? The Amiga Coders Club is for you! Acc 1/4 is the first four compressed issues of an excellent series for coders, even if you are new to the Amiga, if you want to learn Assembly, using Devpac, (or our own ACC Special), this is the club for you!	£1.50		
The Amiga Coders Club disks are packed with source, hints, tips, advice from many of the well known coders that are on the Amiga scene today.			
Issue numbers 5 to 13 now available. Please note, (excluding the compressed introductory disk no. 1/4), Amiga Coders Club disks are £3.00 each.			
ACC issue 12 is our birthday issue, it is a 2 disk set, order this before August 12th and you can have both disks for the low price of	£3.00		

AMIGA CODERS CLUB SPECIAL! At last a low priced Assembler package for all you coders out there in Amigaland. (Available now!) only £5.00

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990: AMIGA C CLUB MANUAL V2. is now here. Loads more info, source and help from Anders Bjerin. Now Auto-Booting and on four disks.	£6.00		
996: The latest and easiest setkeys prog to re-define your keymaps. Plus a host of other utilities, (Icon Design, IconLab, ClipIt etc)	£2.00		
1047: TEXTPLUS V3.0EN is here! The extra facilities on this new version are unbelievable and would take half a page to describe!	£3.00		
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IT'S YOUR WORLD

PRODUCT: 3D Construction Kit
MACHINE: PC Amiga ST
SUPPLIER: Domark
CONTACT: 081-780 2222 or your local software dealer

3D Construction Kit is a simple-to-use three dimensional environment. It lets you design buildings landscapes and even full worlds. You can settle for 3D design or progress to developing games. The accent is on a suite of software driven by on-screen prompts, icons and menus. This is important to a user who wants results with the least effort.

WHAT'S THE USE?

Two main uses of 3D Construction Kit are as a designer, allowing the user to express a concept in 3D and move in and around it, and as a game designer, letting good game ideas be translated into the Freescape environment without weeks of complex coding. Freescape was popularised in the games *Driller*, *Dark Side*, *Total Eclipse* and *Castle Master*.

PRODUCTIVITY

The 3D Construction Kit is a fun way to achieve productivity in design and environment with the least work.

There are two things to run on the single disk. There's a demo game and an editor. When you run the editor, you are faced with a main screen from which options can be accessed. The bottom 40 per cent of the screen is taken up by a panel of icons that allow you to access menus and take short cuts in the planning and creation of your design.

VIDEO TUTORIAL

There's a short VHS video cassette tutorial. This leads you through the first steps of using the 3D editor by example, showing you what to do and what will happen if you do it. Objects are made by creating a shape from a menu, dragging it to shape and moving it into position. Complex designs and shapes can be made from simple ones and are easily manipulated.

Objects are made from a palette of 16 colours that become 256 using dithering techniques.

If you want to add life to your creation there's a command language to cover 'what if'. This could be something simple like a cupboard opening, something a little more complex like an object moving when shot, or a condition that moves you to another location when you touch a door panel giving the impression going through a door to another location.

A command language sounds daunting, but the

Fed up with planet Earth? 3D Construction Kit enabled Virtual Keith Pomfret to explore a reality all of his own devising...



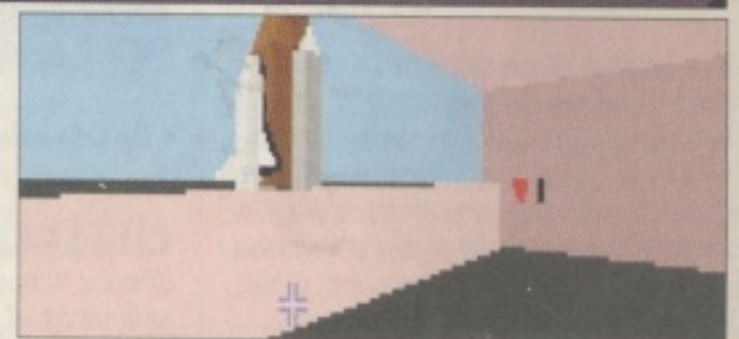
• The 3D Construction Kit game shows you what you can make using a few shapes and your imagination. The short cut control panel means scenes can be built in minutes.

one in 3D Construction Kit is a logical instruction set that can be easily mastered. This part of the program that relies most on the manual. Commands IF ACTIVATED, THEN, ELSE, and ENDIF have their function mapped. The 50 commands cover everything from trigger function to animation.

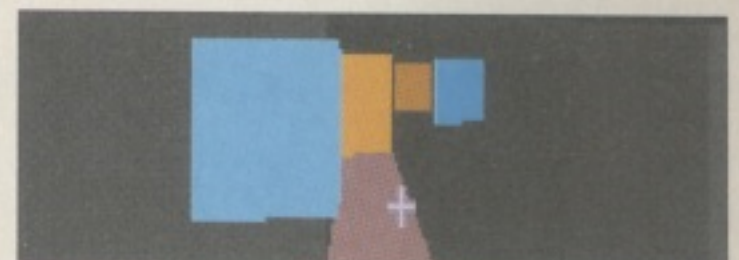
At the top of the screen there are four pull-down menus for File, General, Area and Object. They intuitively guide you through the different controls necessary to build your own world. These are mirrored in the manual in a graphical way that shows you the position of the commands on the menus and explains their function. If you want to find a function in the program, all you need is look it up and the graphic next to the description shows you where it is and what it does.

THE VERDICT

A combination of the command language, easy to use icons, good documentation, and pull down menus make 3D Construction Kit a powerful program that can be used by anyone of average intelligence and imagination, with patience and time on their hands. ■



• 3D design gives a distance perspective in the shuttle bunker.



• With animation, the sideways-moving shutters make walking the plank a dangerous game.



• There's danger in the tunnel. The pyramids on the ceiling are set to drain your life forces away.

DRILLER THRILLER

When Incentive launched *Driller*, the first game in Freescape was a three dimensional environment that allowed you to go over, around and through a game. Freescape was popular in puzzle games with emphasis on solving visual riddles rather than lightning reflexes.

3D Construction Kit opens the Freescape door to produce your own ideas in animated 3D.

MACHINE SPECIFIC

We tested on the ST, but versions are also available for the Amiga and the PC. All of the versions share the same manual. Other than a no mouse option for the PC, and a choice of either joystick or cursor cluster operation, the only visible differences are the sound. The ST and Amiga can utilise sampled sound while the PC is limited by the diminutive PC beep.

FOR AND AGAINST

- FOR**
- ▲ Easy to use
 - ▲ Brilliant results for little effort
 - ▲ Intuitive
- AGAINST**
- ▼ Runs slowly in game mode
 - ▼ Expensive



Games Week

Och aye the noo ... it's Stuart Campbell getting down to some serious game playing interspersed with news, tips and irrelevant information.

Gary Penn is dead. (See the current issue of our sister mag *Amiga Power* for more details). I happened to be walking past the NCE office when the news was broken to them, so the onerous task of taking over **Games Week** has fallen to yours truly. Big though they are, I'll be filling Gary's boots from now on, so it's a big welcome from all of me to all of you (especially Simon Richards of Twickenham - stand by for loads more trash, Simon), and straight on with all the news. If you know anything I don't, give me a call.

PLAY IT AGAIN



• Impossamole - out soon on Gremlin's GBH.

The latest addition to the ranks of full-price re-release budget labels is Gremlin's **GBH**. The first reruns on this new back-catalogue milker will be *Super Cars*; Core Design's platforming disaster *Impossamole* (the *Rick Dangerous* re-write and supposed triumphant return of Monty Mole that didn't quite work); and *Footballer Of The Year 2*, a strange mix of arcade action, management strategy game, and football trivia quiz. All three games will sell at the now-traditional £7.99 price point on Amiga and ST, and will be hitting the proverbial streets sometime in July.

TOPICAL TIP OFF

Bad news for 16-bit fans as, following on from Anco's decision not to produce forthcoming Dino Dini basketball sim *Tip Off* on computer formats (or have they?), veteran software publisher Elite is seri-

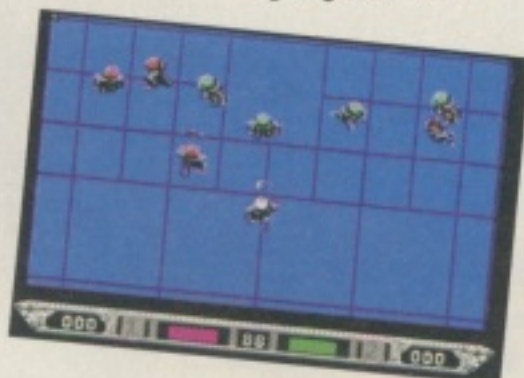
HATSTAND CORNER

Impress your chums with irrelevant but interesting snippets that'll make you the most well-informed games fan on the block. This week: Chuck Rocks. Charles 'Black Francis' Thompson plays video games. 'So what?', I hear you cry, 'so do I'. Well, that's as may be, but you're not the singer of top-notch indie rockers The Pixies, whose new 'Planet Of Sound' EP contains a track called 'Theme From Narc', an interpretation of the music from the Williams coin-op converted last year by Ocean. Coincidence or what? I think we should be told.

ously considering scaling down Amiga and ST developments and concentrating on console games, particularly for the Nintendo. This won't affect planned releases for this year (including European Championship 1992, a re-titled conversion of Tecmo's phenomenally popular World Cup '90 coin-op), but lower costs and higher profits mean that in following years home micro products could be thin on the ground.

SPEEDBALL DREAM

C64 owners will probably faint with delight on hearing that the Bitmap Brothers' classic of sporting mayhem *Speedball 2* is due out on their machine any day now. We've seen a nearly-finished version, and despite some pretty average graphics, the game plays like an absolute dream. Watch out for it, you're going to love it.



• The calm before the storm in Speedball 2.

CHEAPER BITS

Spooky happenings in the budget world, as a range of Amiga, ST and PC games have just gone on sale at a price point lower than many 8-bit cheapies. Prism's Pocket Power range comprises 16 Amiga, 13 ST and 3 PC games so far (with many more due in the next couple of months), all re-releases, and retailing at just £2.99.

TOP 10 SIXTEEN-BIT GAMES

THIS WEEK	LAST WEEK	TITLE	PUBLISHER	MACHINE
1	NE	F15 Strike Eagle	Mircoprose	ST AG PC
2	NE	Full Contact	Team 17	AG
3	1	Eye of the Beholder	US Gold	ST AG
4	NE	Sonic the Hedgehog	Sega	OT
5	4	3D Pool	Mirror Image	ST AG PC
6	3	PGA Golf Tour	Electronic Arts	AG PC OT
7	6	Lemmings	Psygnosis	ST AG PC
8	5	Xenon 2	Mirror Image	ST AG PC
9	2	Lombard RAC Rally	Hit Squad	ST AG PC
10	12	North and South	Digital Integration	ST AG

ST = Atari ST AG = Commodore Amiga PC = IBM PC or compatible OT = Other
Chart compiled by Gallup. © European Leisure Software Publishers Assoc.

• Amiga, ST and PC games costing less than some 8 bits including *Plutos* - a snip at £2.99.

As you might expect, many of the games are of very poor quality, but there are some real pearls hidden among the swine. Check out *Frost Byte*, *Plutos*, *Football Manager* (ST version only) and *Quantox* (Amiga only) for some quality software at a price that would make some PD companies blush.

MORE FOR GAMEBOY

The fast-growing ranks of *Gameboy* owners will be pleased to hear of some new official releases for their software-starved (unless you buy grey imports, that is) machine.

The latest batch includes *Bugs*



Bunny's Crazy Castle, *Burai Fighter Deluxe* (an adaptation of the NES game), *Dr. Mario* (a Tetris-like puzzler) and *Nintendo World Cup*, a football game (so no surprises there), as well as versions of *Chess* and *Battleships* for slightly more cerebrally-minded. Hopefully I'll be reviewing a few of these very soon. ➤

BEG, BORROW, AND BURN

Your at-a-glance guide to the recent must-haves, might haves, and manky old duffers in the world of software.

BEG - whatever you do, get a copy of this, even if you have to sell your body on the streets to do it. (Or if you're smart, someone else's.) *Switchblade II* (Gremlin) - A huge epic of arcade blasting and platform action, this is the game that won't make you ashamed to talk to a MegaDrive owner.



▲ Get down and beg for Switchblade II.



▲ Worth borrowing - P.P. Hammer And His Pneumatic Weapon.

BORROW - you might like this, and you might not. Take a look and make up your own mind.

P.P. Hammer And His Pneumatic Weapon (Demonware) - A pretty and unusual derivative of the 8-bit classic *Lode Runner*, P.P. suffers from some sloppy design and over-complication, but it's the kind of game that can keep you coming back for months. Check it out.

BURN - if someone gives you a free copy of this, smash them repeatedly about the head with a heavy object until they take it back and incinerate it.

Hydra (Domark) is not the most inspiring coin-op ever, but this conversion is so utterly lame it's not even worth the price of one go on the arcade game. Tie it up and chuck it in a river.



▲ Burn it, drown it or smash someone's head with it - the Hydra conversion.

TOP 10 EIGHT-BIT GAMES

THIS WEEK	LAST WEEK	TITLE	PUBLISHER	MACHINE
1	2	Quattro Cartoon	Codemasters	SP CO AM
2	1	Magic Land Dizzy	Codemasters	SP CO AM
3	5	Multimixx 1 Golf	KIXX	SP CO AM
4	4	Drogon Ninja	Hit Squad	SP CO AM
5	3	Dizzy Panic	Codemasters	SP AM
6	6	Double Dragon	Mastertronic	SP CO AM OT
7	7	Paperboy	Encore	SP CO AM OT
8	9	Continental Circus	Mastertronic	SP CO AM
9	11	Euro Boss	F&J	SP CO AM
10	NE	Professional Footballer	D&H Games	SP CO AM

SP = Spectrum CO = Commodore 64 AM = Amstrad.
Chart compiled by Gallup. © European Leisure Software Publishers Assoc.

CJ'S ELEPHANT ANTICS

Code Masters • Amiga, C64

For an infinite supply of the cutest character currently doing the rounds, simply type the following words ('it's a bit rude, so this is it in reverse): 'SELOHESRA YHCTI' (including space) on the title screen. (For the C64 replace 'YHCTI' with 'YRIAH').

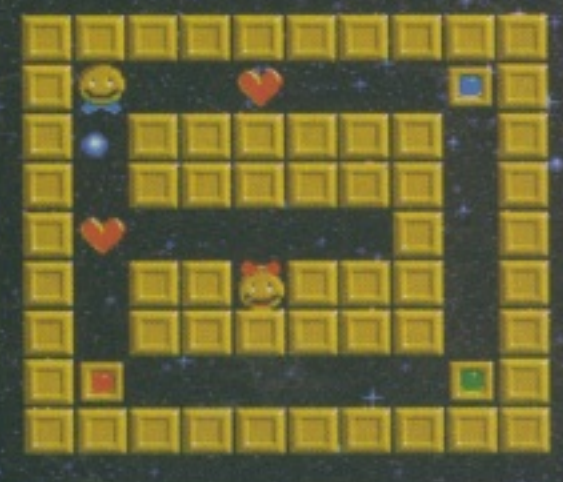


THE POWER

Demonware • Amiga, ST, C64

This curious puzzler has had a mixed reception, but if you're one of its fans, you might find a use for these level passwords:

- 2 - LEVEL2 (ho ho)
- 3 - VISUAL
- 4 - COWBOY
- 5 - URGENT
- 6 - OOPSUP
- 7 - TOPTEN
- 8 - D14DH7
- 9 - ASOFGH
- 10 - SOLONG
- 11 - SURFIN
- 12 - RACKET
- 13 - BULLIT
- 14 - QRAZZY
- 15 - 36F6FR
- 16 - UNLINK
- 17 - PIXXEL
- 18 - EUROPE
- 19 - NEWTON
- 20 - FREEZE



HELP MA BOAB!

What's that you say? You just can't kill that last end-of-level baddie? Simply can't find the secret room with the crucial power-up? Don't know how to deal with the wrinkly old man with the magic stick? If you've got a problem with a game, there are three things you can do:

- 1 Give up eating, drinking, working and sleeping until you've solved it (and probably give yourself a coronary into the bargain).
- 2 Admit defeat, throw away your computer in disgust, grow a beard and go and live in a cave, throwing rocks at passers-by

occasionally and eating moss to get by in your new life as a complete failure.

- 3 Get some other mug to do it for you. They can be found at:

HELP MA BOABI,
Games Week,
New Computer Express,
30 Monmouth Street,
Bath BA1 2BW.

State the name of the game and your specific problem, and what it is you're after (a tip, a cheat mode or whatever). If I don't know how to do it, you can bet I'll know someone who does. ■

CHALLENGE GOLF

On-Line • Amiga, ST, PC • £24.99

The recent release of Electronic Arts' brilliant PGA Tour Golf was thought by many to be just about the last word in computer golf games. On-Line clearly disagrees, and they've brought us this low-key, no-licence release which they presumably hope will clear up what's left of the market. Sad to report, though, there's not much chance of that. Despite being loaded with enough options to make even Mrs Thatcher a little bit undecided (1-4 players, any number of computer opponents, skill levels, various types of competition and practice matches, etc etc), Challenge Golf is decidedly second division material. The game seems largely to play itself, the player's control inputs having minimal bearing on the actual flight of the ball.

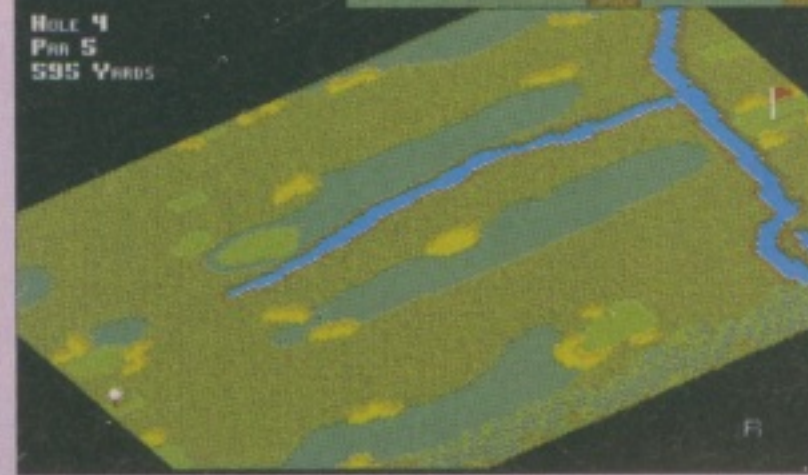
Graphically it's extremely crude, and bugged into the bargain (the 3-D replay, for example, doesn't relate to the actual shot, and sometimes even shows the ball bouncing on water). Soundwise there's very little to get excited about (the 'sound off' option included is a complete waste of code space, or possibly a little programmer's joke) and in general the game just doesn't have the right feel to it. Putting in particular is dreadful, with short putts apt to bounce off the hole (don't ask me why) and come straight back at you, ending up further away than they started.

This game doesn't have anything to recommend it over PGA Tour except the price, and if it's price you're concerned with you can buy World Class Leaderboard for eight quid. (And get a much better game into the bargain.) Give it a miss.



◀ Golfputt - The putting sequence shows the primitive graphics at their worst. The large red arrow indicates the slope of the green but has little or no effect on the ball's movement, and the cursor, which would control your aim, is actually totally redundant. The course map in the bottom left-hand corner shows all the water on this hole, which the ball nonetheless seems highly reluctant to fall into.

Golfdrive - You can aim the cursor over to the left all you want, when you hit the ball it'll still fly straight down the middle. It makes you wonder why you bother to make the effort at all, and pretty soon, you won't. It's no coincidence that this course (one of the four available) is called 'Negativeland'.



◀ Golf3d - This 3D overview of the hole appears after every shot, and shows an action replay of the last hit which doesn't always bear much relation to where the ball actually went.

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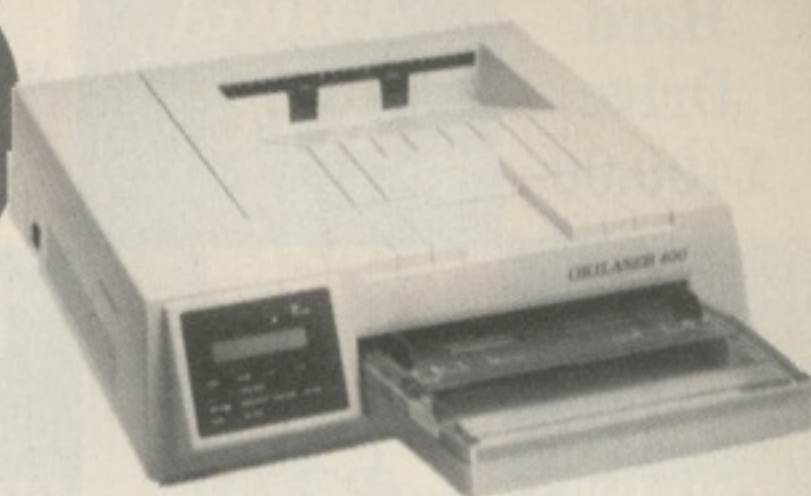
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EASILY LED PRINTING



• Light emitting diodes give the Okilaser Printer its high quality output.

PRODUCT: Okilaser Page Printer
FROM: Oki Electric Industry Co Ltd
CONTACT: 0800 525585

When is a laser printer not a laser printer? When it's an Okilaser Page Printer. The Okilaser Page Printers 400 and 800 are not actually laser printers – they use a technique known as LED technology to produce print outs (see box below).

An average user would not notice the difference – they look like laser printers, they are set up like laser printers and, most importantly, they produce print quality virtually indistinguishable from laser printers. Indeed, the results we achieved from the review machine, the lower specification Okilaser 400, were very good. Small fonts printed crisp and clear while bold fonts were sharp and well-defined. Only some of the finer fonts, when italicised, showed signs of becoming bitmapped.

SETTING UP

If you know what you are doing, setting up one of the printers will only take a few minutes. If, however, you need to refer to the manual, it will take a while longer,

Pitch	Point Size	Stroke Weight	Typeface	Print Sample
10	12	Medium	39	0123456789ABCDEFabcdef AEO aeo A
10	12	Bold	39	0123456789ABCDEFabcdef AEO aeo A
10	12	Medium	39	0123456789ABCDEFabcdef AEO aeo A
10	12	Light	39	0123456789ABCDEFabcdef AEO aeo A
16.66	8.5	Medium	39	0123456789ABCDEFabcdef AEO aeo A
Prop(8)	14.4	Bold	1	0123456789ABCDEFabcdef [US
Prop(8)	14.4	Bold	39	0123456789ABCDEFabcdef AEO aeo A
Prop(8)	10	Medium	1	0123456789ABCDEFabcdef [US ASCII font]
Prop(8)	10	Bold	1	0123456789ABCDEFabcdef [US ASCII font]
Prop(8)	10	Medium	1	0123456789ABCDEFabcdef [US ASCII font]
Prop Comp	10	Medium	1	0123456789ABCDEFabcdef [US ASCII font]
Prop Comp	10	Bold	1	0123456789ABCDEFabcdef [US ASCII font]
Prop Comp	10	Medium	1	0123456789ABCDEFabcdef [US ASCII font]
Prop(7)	10	Medium	39	0123456789ABCDEFabcdef AEO aeo A
Prop(7)	10	Bold	39	0123456789ABCDEFabcdef AEO aeo A
Prop(7)	10	Medium	39	0123456789ABCDEFabcdef AEO aeo A
Prop(8)	8	Medium	1	0123456789ABCDEFabcdef [US ASCII font]
Prop(8)	8	Light	1	0123456789ABCDEFabcdef [US ASCII font]
Prop Comp	8	Medium	1	0123456789ABCDEFabcdef [US ASCII font]
Prop(7)	8	Medium	39	0123456789ABCDEFabcdef AEO aeo A

• With four fonts, bold, italics and five size choices the Okilaser printers offer a total of 25 font options.

SPECIFICATIONS

- Print speed 4 pages per min (8ppm for the 800)
- Resolution 300x300dpi
- Number of Fonts 35
- Interface Parallel and serial
- Paper capacity 200 sheets
- Toner life 2,500 sheets
- RAM 512K up to 2.5Mb (4.5Mb for the 800)
- Price £899 (£1,399)

The Okilaser Page Printer sounds like a laser printer, prints like a laser printer, but is definitely not a laser printer. Dave Golder puts the machine to the test to see how it performs.

SO HOW DOES A LED PRINTER WORK?

With a laser printer the laser scans to and fro across the drum, repeatedly switching on and off depending on whether the area to be printed should be black or white. The image from the drum is then transferred to paper.

A LED (Light Emitting Diode) printer has a line of diodes, 300 per inch, which remain in a fixed position. As the printer drum rolls beneath them they will switch on and off in a series of different patterns; there will be 300 separate patterns

for every inch of printed area (this gives a print resolution of 300 dots per square inch). This process etches the image to be printed into the toner on the drum, and the image is transferred on to paper in the same way as a laser printer.

since the manual is filled with very helpful-looking diagrams that are not, in fact, that useful. For example, one diagram shows how to insert the image drum, but it is near impossible to tell which way around, or even which side up, the drum should be placed in.

Once switched on the printer takes less than a minute to warm up and, provided you have connected it up to the computer correctly – again something not very clearly explained in the manual – you are ready to print.

Both the 400 and the 800 are HP LaserJet Series II compatible, so if your software does not have an Okilaser printer driver (which is very probable) you should encounter few compatibility problems as most software packages that require print outs have HP Series II drivers.

The Okilaser printers have 25 resident fonts which, at the price, is a very good selection. There are four basic fonts types available – Courier, Helvetica, Times Roman and LN Printer, which can then be made bold or italicised and used in five different sizes.

More fonts are available with 'font cards' which can be obtained separately for £89 each. These are slightly smaller than credit cards and slot into an opening in the side of the printer. Useful, but a bit expensive.

SLOW AND SHORT LIVED

The print speed on the Okilaser 400 is relatively slow. Officially it is four pages a minute, which is about the slowest you will get on a laser printer and many

machines at comparable prices offer six pages per minute. The Okilaser 800 offers a maximum of eight pages a minute, but will cost you an extra £500.

The toner also has a short life printing only 2,500 sheets – about the half the average for most laser printers. But its toner cartridges, priced at around £19, are excellent value – the average price is around £90.

A drawback the Okilaser unfortunately shares with many laser printers is that it only comes with half a megabyte of RAM as standard; this makes the printing of complex pages created with desktop packages almost impossible. Although upgrades are readily available (from £299 for a 1Mb expansion) it seems strange that the company cannot offer a model with at least 1.5Mb of RAM.

Despite these drawbacks, the Okilaser 400 and Okilaser 800 are very good value for money, offering a competitive alternative to standard laser printers. ■

THE FINAL PRINT-OUT

FOR

- ▲ Very sharp, clear print out.
- ▲ A wide selection of fonts for the price.
- ▲ The LED system of printing means there are fewer moving parts to wear out or break down.
- ▲ HP LaserJet series II compatible.
- ▲ Loading paper is simple.

AGAINST

- ▼ Paper tends to get slightly curled.
- ▼ LCD screen at an angle where it tends to catch the light.
- ▼ Relatively slow print speed.
- ▼ Supplied with only half a megabyte of RAM which makes advanced DTP difficult.

COST

Okilaser 400 –£899, Okilaser 800 £1,399.

THE COMPETITION

Other LED printers on the market include:

Printer	Price	Contact
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Fujitsu RX7100	£1,095	081-573 4444
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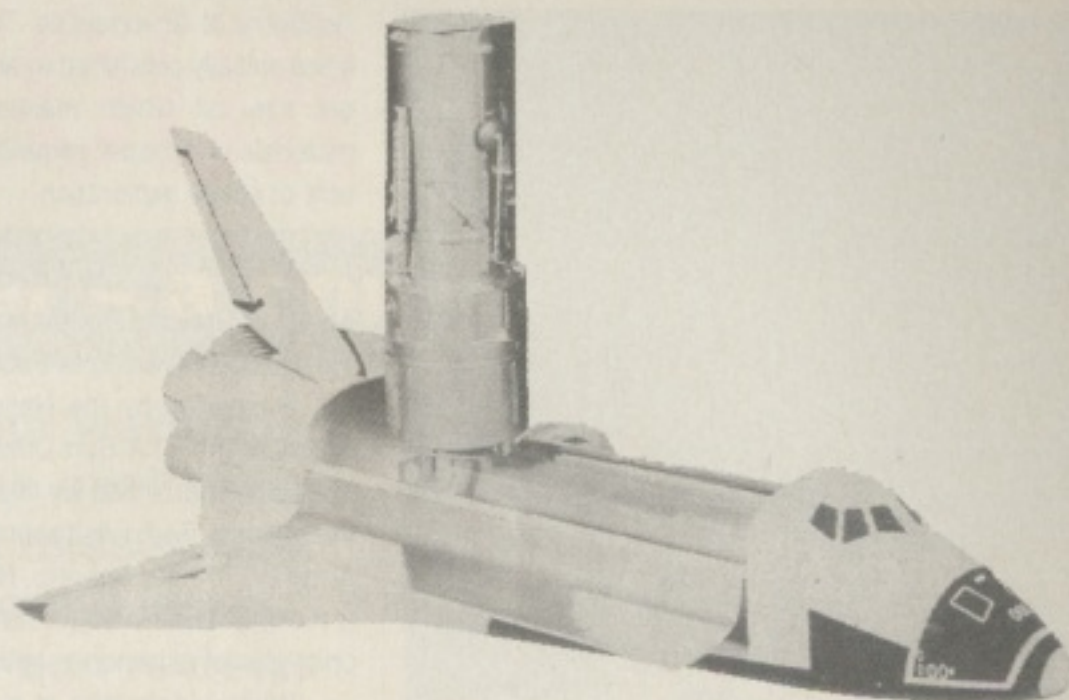
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LOST IN SPACE



Far from the public glare, visionaries are developing plans for space habitats and sculptures that will orbit earth and be visible to a global audience. Rik Haynes taps into their underground network of art, science and technology ...

The advent of computer graphics, fax, interactive video, teleconferencing, holography, hypermedia and the proliferation of other computer technologies have spawned a new breed of high-tech artists. All share a common disillusionment with the use of science and technology for weapons by turning the tools of Big Brother to their own advantage. These people are contemptuous of television, enthralled by virtual reality.

Possibly the most far-reaching of these artists are the pioneers who wish to break through the boundaries of crowded small-scale art galleries by invading the outer reaches of space. These people look on space as an exciting canvas for the arts of the future.

FORUM FOR HIGH-TECH ARTISTS

Information must have a means of dissemination. Reporting on and nurturing this constant innovation drive is the responsibility of the International Society for the Arts, Sciences and Technology (ISAST). This is a non-profit organisation dedicated to promoting the use of contemporary science and technology in the arts. Associate membership in ISAST is open to professional artists, collectors, scientists, engineers and others interested in modern arts and sciences. Membership brings them plenty of benefits and a subscription to *Leonardo*, the bi-monthly journal of art, science and technology.

"This is the foremost international forum for artists and others interested in the application of contemporary science and technology to the visual arts and music," says a ISAST spokesperson.

"... space exploration has inspired an extraordinary variety of artistic activities"

Leonardo features articles written by artists about their own work, as well as discussions of new concepts, materials and techniques.

In the past year ISAST has begun sponsoring a program that brings *Leonardo* authors, editors and prize winners to local arts institutions for speaking engagements. Apart from the regular issues of *Leonardo*, ISAST occasionally publishes special issues of the journal and theme packs with reprinted articles.

ISAST is now looking forward to covering the increasing involvement of artists in the greatest adventure of our time - space exploration. Having already

flowed artworks on the US Space Shuttle and the Soviet Mir Space Station, pioneer artists continue to explore the possibility by visualising extra terrestrial landscapes, developing plans for space habitats, creating large earthworks intended to be viewed from space, and planning sculptures that will orbit earth and be visible to a global audience.

According to Roger Malina, Executive Editor of *Leonardo*, "Artists have accompanied explorers on many of the great voyages of scientific and geographic discovery. So it should be no surprise, that, in the last decade, space exploration has inspired an extraordinary variety of artistic activities."

One of ISAST's special theme pack includes articles on a clay sculpture series 'Unidentified Intergalactic Rovers', satellite art and a call for a Space Ethics Committee. *Space Art News* is an occasional publication of ISAST in collaboration with the International

CONNECTIVITY

Art and Interactive Telecommunications merge on the Fine Art, Science and Technology database (FAST) which includes art and music related bulletin boards, Space Art News, fine art forum, bibliographies and abstracts, calendars of events, job listings and a holography hotline. Started in 1988, FAST is updated weekly and the current issue is also available on MS-DOS compatible disk for \$25.

FAST is accessible on the MCI bulletin board on 0101 202 8333 8484 and at ACEN on the WELL (0101 415 332 6106). You can also send E-Mail via Usenet, accessible via CIX and other boards, at: LEONARDO@WELL.UU.NET.



• While the floating adverts featured in *Bladerunner*, may still be some way off, organisations like ISAST are at least providing a forum to forge the mix of science and art necessary to make images literally 'out of this world'





Academy of Astronautics. This newsletter, which is also electronically published in an on-line bulletin board, covers fine art which makes use of new techniques, materials or sensory experiences generated as by-products of space exploration.

STAR GAZING

The Sun Drawing Project and L'Astrolabe are typical of the projects revealed in *Space Art News*.

Supported by the National Science Foundation in America, the VLA Sun Drawing Project is a monumental-scale work of art by Janet Saad-Cook. Located at the national Radio Astronomy Observatory's Very Large Array (VLA) near Socorro, New Mexico, Sun Dawning is a moving mural of light that combines art with the key principles of astronomy, optics and space technology.

While L'Astrolabe is a large outdoor sculpture by Alain Le Boucher, created earlier this year for the exhibit 'Les artistes et la Lumiere' at the Centre National d'Art Contemporain in France. This sculpture is interactive, the viewer is able to dial-up various images of the night sky on TV monitors. George Dyens also made a 30' x 30' installation for the same exhibit entitled Big Bang II which included holograms, optical fibres and electro-acoustic music.

Conferences regarding space art are regularly occurring throughout the world from London to Beijing

Conferences and communications regarding space art are regularly occurring throughout the world, from London to Beijing.

The International Academy of Astronautics is currently organising a session on Space Architecture and Space Settlements. At the Round Table on Art in Space, the main topic of discussion was ethical and concerned public art issues arising from orbiting sculptures visible from the ground. Several architects involved in the Eiffel competition were among the participants and a French transcript is available. The International Design for Extreme Environments Association is to be formed later in the year to cover all habitations in extreme environments including orbiting space stations and future outposts on the Moon, Mars and other planets.

Just in case of a potential intergalactic conference, Hans Freudenthal has constructed a language to communicate with members of an alien society.

For some, the time for talk and planning is over. Japanese artist Cao Guo Qiang has created an art-

work titled '45.5 Meteorite Craters made by beings on their 45.5 million year old planet'. The work is located in Pourrieres, France and was created using 50Kg of gunpowder, dried grasses and paper last summer. The site, some 10,000 m², as viewed from aerial photographs, shows a large field pock-marked with craters.

Contemporary American artist James Turrell is working on a gigantic earthwork at Roden Crater in Arizona. This volcanic crater is being modified through the building of chambers and passages, and the smoothing and altering of natural topography.

With the International Space Year due to begin in less than six months time, *Leonardo* is planning a special issue, The Artist and Space Exploration, highlighting the work of artists, scholars, scientists and engineers in this exciting field.

Additionally, artist Arthur Woods and aerospace engineer Marco Bernasconi are already working on a remarkable scheme which could spark a new age of art. The Orbiting Unification Ring Satellite Project is an ambitious series of space sculptures. The first is due to be launched next year by the Soviet space agency. Ironical, when you consider similar technology would also be used to launch a nuclear missile strike.

Space really is the final frontier. Artists are boldly going where no-one has gone before.

SCIENCE AND ART

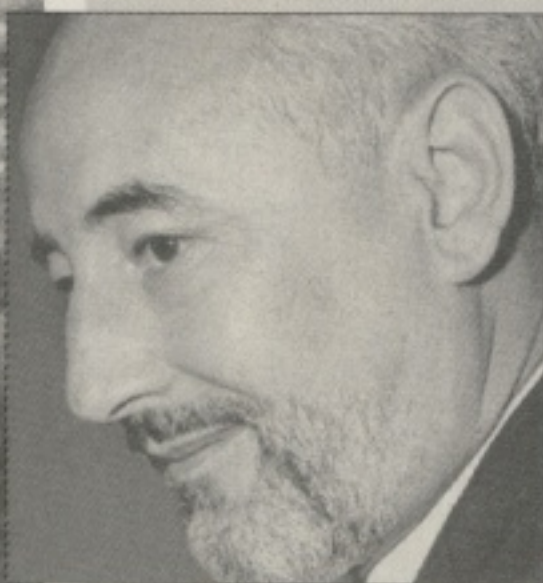
Our culture has produced so few people like Leonardo da Vinci who found it natural to live in a world where science and art coexist. *Leonardo* is the journal for the International Society for the Arts, Sciences and Technology (tel 0101 415 845 8298)

This publication is probably the only attempt to provide a unified perspective on the worlds of art, science and technology. Readership evolved from a small, but faithful niche of artists, scientists and engineers into the vanguard of the new arts and aesthetics that have resulted from the extraordinary technologies of our time. For the past 23 years, *Leonardo* has published articles on such subjects as space art, robotic choreography and musical interface with the human nervous system.

This year, *Leonardo* has gone from a quarterly to bimonthly publication and has added a special issue on music and a new gateway section that introduces people, events and emerging technologies that are shaping the direction of new art. ■

For further information on The International Society of the Arts, Sciences and Technology and other related projects write to: ISAST, 1442A Walnut Street, Berkeley, California 94709, USA.

THE ARTISTIC ROCKETEER AND THE ROBERT MAXWELL



• Frank J Malina, developer of *Leonardo* - the first journal devoted to science, technology and the arts.

Frank Malina, founder of *Leonardo*, was an American scientist who, after receiving his PhD from the California Institute of Technology in 1936, directed the Wac Corporal program that put the first rocket beyond the earth's atmosphere. Malina also co-founded the Jet Propulsion Laboratory and Aerojet General Corporation. He was an active participant in rocket science development in the period leading up to and during World War II.

As an artist, Malina was highly versatile and experimental. He quickly moved from traditional media to string constructions and finally to the development of systems for kinetic painting.

Malina was impressed with publisher Robert Maxwell after he took it upon himself to find and liberate warehouses full of German scientific journals that had accrued during the Nazi regime in isolation from the world's scientific communities. Together, they formed *Leonardo* - the first journal devoted to science, technology and the arts.

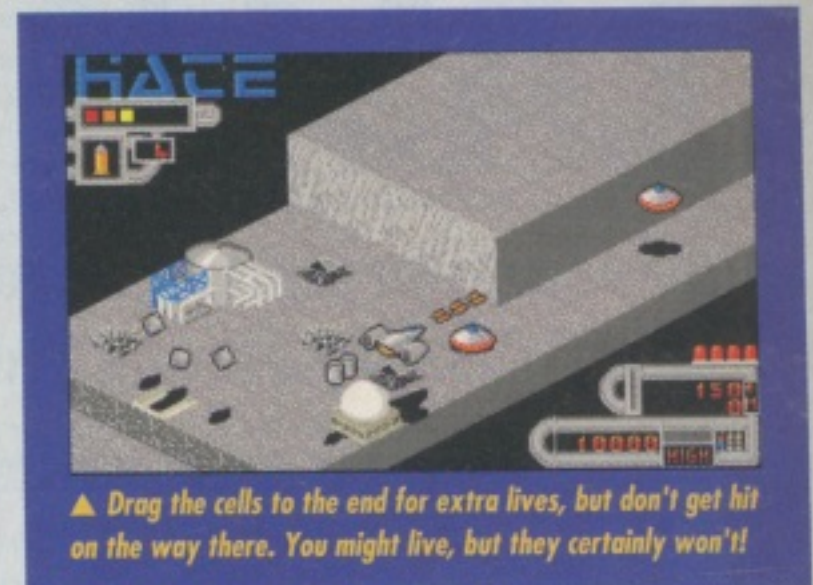
When Malina died in 1981, *Leonardo* became the responsibility of his son, Roger, an astrophysicist at the University of California at Berkeley. Roger Malina is married to one of Robert Maxwell's daughters.

DON'T MISS YOUR CHANCE!

Special Amiga/ST offer – a complete game!



It seems that, despite all our warnings and best efforts to increase availability, some *Express* readers still missed out on last week's cracking special issue. Besides all the latest news and reviews for your machine, it featured, as you're no doubt aware, a full, brutally addictive game for the Amiga and ST called **HATE**.



▲ Drag the cells to the end for extra lives, but don't get hit on the way there. You might live, but they certainly won't!

- Inside the magazine, just to rub things in, we featured a full, illustrated playing guide, complete with tips, short cuts and even a special cheat for those really tricky moments.
- If you're an Amiga or ST owner and you missed out, you must be pig sick, eh?
- Well, you'll be glad to know we have kept just 2,500 copies of this special issue for those regular readers who missed out. To order a copy, fill in the form below and send with it a cheque or postal order made payable to Future Publishing Limited for just £1.95 to: New Computer Express Special Offer, Future Publishing, Freepost, The Old Barn, Somerton, Somerset TA11 7BR.
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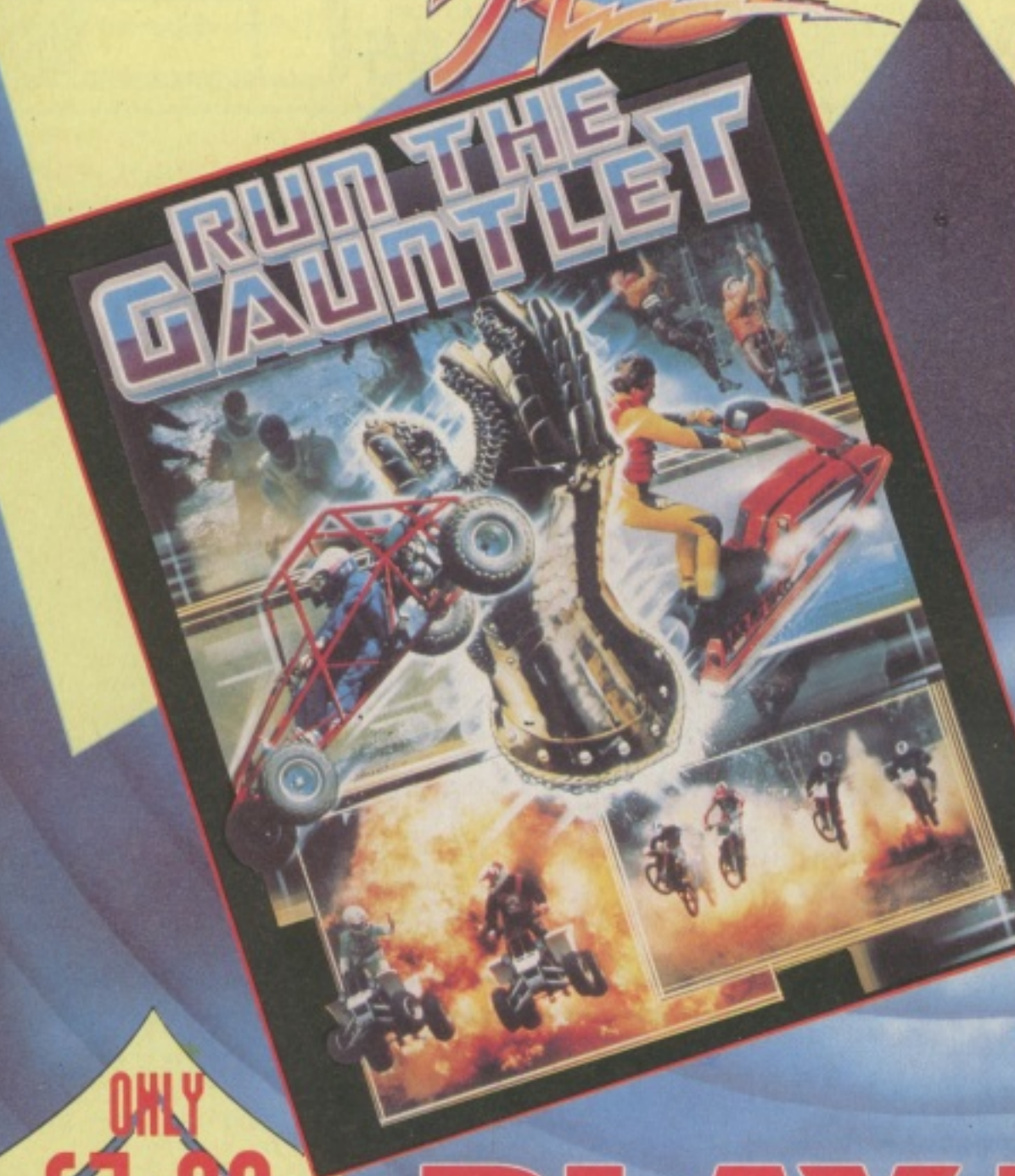
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